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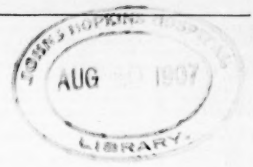
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MENS SANA IN CORPORE SANO.

BY DAVID W. CHEEVER, M.D., LL.D., BOSTON.

The mind cannot exist in our present world without the body; and no healthy mind without a healthy body. This I consider an axiom.

The one exception is a bright intellect surviving in a sick body. This is a hectic fire, flaming uncertainly, and often consuming the crucible. But this is not a healthy mind, for the latter is even, tempered, uniform. The eccentricity of genius is like an electric light, brilliant, dazzling, but unnatural.

The healthy mind corresponds to its surroundings, burns evenly, repairs its waste, lasts as long as the healthy body.

One hardly needs to reflect to realize the constant influence of the organic functions of the body on the moods of the mind.

A sick man, a morbid mind: melancholy distils black bile.

As the old observers pointed out, all maladies situated below the diaphragm depress the spirits. The vagaries of dyspepsia influence the mind equally with the body. A good digestion means good nature, cheerfulness and calmness.

The clogging of any excretion dulls the mind. Free excretion, whether of skin, kidneys or bowels, clarifies the mind; every thought and every emotion. Fasting, even, purifies and sharpens the mental action.

It is especially requisite that the physician should possess the healthy mind. If otherwise, he is no fit adviser for the sick. In all sickness the mind of the patient is shrunken and changed.

But he who tries to administer solace, relief, cure, must be healthy, or he fails lamentably. What more depressing than a half-sick doctor? Pessimism is his natural bent, but optimism is his one essential need to cheer the sick man. The physician must be hopeful, or the patient sinks under his load of fears and morbid imaginations.

If then the body rules the mind so largely, it is doubly important that the doctor consult and preserve his health. Does he?

It is a common observation that physicians share the habits of their fellow-beings.

The first great law of health is regularity, periodicity, in everything. The hours of meals, of rest, of work, if uniform, are the best of preservatives. But the doctor is sometimes unavoidably, and sometimes needlessly, more irregular than other men. He cannot avoid loss of sleep; he cannot always be punctual at his meals. This is true of all our hard-worked profession, in country or in town. Perhaps it is most especially true of the hospital doctor.

Health demands that the interval between meals should not exceed five hours. And that all meals be taken within twelve hours, leaving twelve hours for rest, and assimilation in sleep. For instance, a breakfast at eight o'clock means a luncheon at one and a dinner at six.

One hour of variation, on either side, may be safely allowed, but no more.

Every employé of a hospital is given a nooning and a lunch. The doctor, whether chief or house-officer, is not. Luncheon is made a movable feast; and exhaustion finally secures this meal at two and a half, three, three and a half, o'clock. After the proper five-hour interval is passed hunger ceases; but waste and exhaustion increase. When one is tired he cannot digest.

Our surgeon, or his house-surgeon, is laboring in responsible and wearying work after seven hours of fasting. Then he swallows food and has indigestion. It is true that the great elasticity of youth will bear this for a while; but after thirty-five or forty years of age trouble comes.

But the physician's harvest time of labor is from forty to sixty years. At forty, perhaps, dyspepsia, flatulence, dilatation of the stomach, delayed peristalsis, pave the way for gastric ulcer, for pyloric obstruction; and possibly, later, for organic diseaee.

If now one seeks to brace up for delay and to take the support of alcohol, or to narcotize the hunger with tobacco, the cocktail passes directly to the liver and thickens Glisson's capsule; and the nicotine is expended on the nervous centers.

What a common history! Alas! too common.

There is nothing which breaks the health so certainly as irregularity in time (not quality) of eating, except the use of hard spirits in an empty stomach.

Wine, or beer, with meals is harmless, if in moderation; and tobacco after eating does a very minimum of harm; it narcotizes and conceals indigestion; but if used continuously it may functionally weaken the heart;

These are axioms; platitudes you will say: how much do they cost? Health, happiness, equanimity. Finally there is a break-down. The physician at fifty is tired out, and needs a rest; not always from hard work, however, but from the insidious waste of irregular hours.

It is true that responsibility, anxiety also wear him; but they cannot wear out the healthy body.

Firm health and vigor shake off anxieties and responsibilities; health resists; health insures longevity.

But if the physician is so unfortunate as to take his cares to bed with him, he has mistaken his calling.

Wakefulness is fatal to equaminity. If the doctor cannot sleep after any night call he is sure to break down. The occasional loss of sleep from night work need, however, cause no anxiety. For sleep is so imperious a need, that all finally get it, if reasonably healthy. Forty-eight hours without sleep is followed by enforced sleep; nature takes care of that. People sleep standing up, and on horseback.

Next to regular food the physician needs open air. This he gets more than in other callings. He rides and rests as he rides, and even sleeps, if he does not drive himself. He had better not smoke as he rides.

Now bodily exercise is much talked off. It

is a relative term; for all do not need the same amount. I have sometimes thought and often felt, during my active period of work, that rest and not exercise was my first need. Hospital work, or private practice, four hours of the one, or ten visits of the other, are exercise enough. One is tired all over. While a little exercise in the open air will freshen up the exhausted feeling, much exercise fatigues too far.

As time goes on, and age increases and practice decreases, now is the period for systematic, determined exercise; in a gymnasium, walking, bicycling, riding a horse, rowing, playing light out-of-door games. Stiffening joints, sagging vertebræ, hardening arterial coats are all loosened and their changes postponed by bodily exercise. Obesity should be discouraged; a lighter diet followed; exercise be increased.

The practce of medicine and surgery is a healthy occupation, compared with the legal or the mercantile life. There is constant mental preoccupation; there is much to interest one; there is endless novelty and variety. It is all right for happiness and longevity provided some simple rules are strenuously observed.

Such are regular meals, sleep enough, out-of-door exercise, occasional vacations. None of these can be absolute rules; but we must try for them.

Next to bodily health is peace of mind. Do not cry over spilt milk. Dismiss the inevitable past. You know you did the best you could. Say to yourself, "With the light I then had could I have done better?" No, you could not. Let it go; remember it only to guide the future.

The doctor shares his patient's sufferings; true; be sympathetic, but do not let it go too far.

The healthy body now comes in again.

Phagocytes of worry-germs depend on good health for their vigor.

Health sheds all minor ills; is a tonic to brace up resolution; makes you a better doctor, and one more likely to cure your patient. For no one who has experienced a fit of sickness in his own person can forget how soon the mind sickens with the body. Courage fails; forebodings grow; judgment is annihilated. It is also a familiar remembrance that whenever we sleep, and the co-ordination of consciousness is lost, we dream, and a dream is an insanity: real in imagination; unreal in fact; pleasant if we digest well; fearful if the solar plexus is compressed by a flatulant and dilated stomach.

Temperament governs our lives also. It is an inheritance; but it can be regulated and disciplined. Let us learn to do that, and remember that he who masters himself is greater than he who taketh a city.

Self-control, immovability, calmness, resolution, cheerfulness, health of mind, based, however, on health of body.

If there is one quality in our profession essential to success it is endurance or "staying power."

Many persons achieve a temporary success, but are unable to retain it. It is the long-winded man who wins the race.

This quality, even if inherited, must be cultivated; and this can only be done by physical training in youth.

Fortunate the young physician who starts in his profession with a deep chest and hardy limbs. In this way, sometimes, a country boy surpasses one city-bred, just as the fisherman outlasts the college oarsman. The one is tough all over. the other is strong in spots.

Early manual training may be regarded as an essential to success, as much as a technical education to cultivate the observing faculties.

Tact is a gift of the gods. It is invaluable as an asset in life. And in our calling so much depends on personality and making a good impression, that tact is almost sure to out-speed other rivals.

Finally, we may truly say that calmness, good-humor, pertinacity, staying-power all lean on good health. The body is the ally and the indispensable backer of the mind.

SOME MEDICAL PROBLEMS IN THE STATE'S SERVICE.*

BY C. A. DREW, M.D.,
Medical Director, State Asylum for Insane Criminals, Bridgewater, Mass.

ON June 22, 1905, M. F., an intelligent-looking mulatto, twenty-six years old, was admitted to the Massachusetts State Asylum for Insane Criminals from the State Prison at Charlestown, where he was serving a sentence of from eighteen to twenty-five years for assault with intent to rape.

The medical certificate upon which his commitment was based was signed by two experts appointed by the State Board of Insanity to examine as to the mental condition of prisoners suspected of being insane, also by the prison physician who wrote an independent certificate which did not differ essentially from that of his expert associates. The certificate of the experts reads as follows:

"To His Excellency, William L. Douglas, Governor of the Commonwealth:"

"We have made two examinations of M. F., an habitual criminal committed (for the third time) to the State Prison May 31, 1904, on a sentence of eighteen to twenty-five years for assault with intent to rape. He is twenty-six years of age and married. In our opinion his condition is such as to require his confinement in an insane asylum for observation and care, although the symptoms of actual insanity are obscure and feigning possible.

"For the last twelve days he has refused all food furnished from the prison kitchen and gives as his reason that another prisoner puts powdered glass into it. He takes in consequence nothing but water, with the result that he has emaciated considerably. This glass 'cuts his throat and stomach.' He has made an attempt to hang himself with his suspenders and to bleed to death by opening a vein in his hand and the bend of an elbow. He insists that his child is brought to him at night, and that a detective comes and threatens him also at night. He also says that he sees wheels spinning about his room. The man who (he thinks) poisons his food also visits him at night. People in the kitchen are 'trying to do him up.' His wife says that his uncle is in an insane asylum.

* Read before the Plymouth District Medical Society at Brockton, Oct. 17, 1906.

"On the other hand certain circumstances seem to show that his attempts at suicide are not genuine ones. He has told us and written his wife that as there is no longer any chance for him to secure a new trial he is determined to take his life, indicating a sane reason for such attempts.

"In view, therefore, of the possibility of danger from the prisoner's suicide and his persistent refusal of food, we believe it to be essential that he should be confined in the asylum for criminal insane at Bridgewater, where the facilities for thorough observation are complete and where forced administration of food can be employed if necessary."

This medical certificate seemed to us to be written with much care, after careful consideration of all the evidence, and with a full appreciation of the possibility of the prisoner being a clever malingerer. Indeed, we are inclined to think that this medical certificate was so well considered as to reflect credit, even on the eminent physicians whose signatures it bears. If the final judgment be that the prisoner was not insane, the light thrown on some phases of medical problems in the state's service will not be at all lessened.

We note that this was the prisoner's third commitment to the Massachusetts State Prison. From his mother we learned that an uncle had been an inmate of a hospital for insane in Massachusetts, and from the patient's own story, supported by some known data, we learn that our hero was born in Nova Scotia; that his sailor father, who was a hard drinker, died of tuberculosis at the age of forty-four. According to patient's story, his father had killed his man in Texas, but escaped to his shiip and avoided arrest. His paternal grandfather was insane and confined in an asylum in Nova Scotia. One J. H., a demented epileptic, and an inmate of the Massachusetts Asylum for Insane Criminals, is alleged to be a first cousin of M. F.

The patient came to the United States from Nova Scotia at the age of seven, and attended school for the following three years. Was sent to the State Primary School at Monson when he was ten years old, thus early becoming a beneficiary of the Commonwealth of Massachusetts. After two years at Monson he was put on a farm in Springfield where he staid one year and then returned to Lynn, which has been his home much of the time since, — when not serving time. It may be due to the environments of this prosperous city of the Commonwealth quite as much as to the refining influences of those public institutions where M. F. served time so long that he seems to have taken polish readily. There was very little of the rustic about him. His manners and English were good, with little to suggest a street waif or a common tough. The prison physician testified that "M. F. had learned 'shorthand' in prison and wrote English in a superior manner for one of his race." Patient belonged to two races and seemed to have mastered some of the accomplishments and vices of each.

It seems that M. F. narrowly missed being a blacksmith, as he worked at that trade for nearly five years. As near as patient could remember, he had been arrested about ten or twelve times. Several of his arrests were for assault, but horse stealing, breaking and entering and attempt to rape were among the counts.

On examination, patient was neither excited nor depressed. Talked in a quiet and agreeable manner. Said he was locked up frequently at prison but most always for fighting. Said one of the prisoners in the kitchen put poison in his food to make him drowsy so that he would tell who wrote a certain letter of complaint to the Governor. At first it was ground glass, later it was some other form of poison. It was the warden's order that his food be poisoned. Said he tried to hang himself because he did not believe he could live under such conditions. He saw his child run around his room at night and thought his wife visited him and the officers sent the child up to his room to see him.

A month after admission it is recorded: "Patient complains that 'the warden of the state prison is down here and comes to my room every evening to try to get me worked up but I don't notice him.' He reports to doctors and night attendants that the warden knocks on his door at night and keeps him awake, but still patient gets his usual amount of sleep and his belief does not interfere with the routine of his daily life, such as card playing, playing violin, ball games, etc."

Two months after admission it is recorded: "Patient was transferred from E-2 to F. Has been a disturbing element on the different wards where he has been. Has threatened to make trouble several times and tries to gather about him a following of the more vicious and weak-minded."

A week later he promised to use his influence for good if permitted to go into the large recreation court again and continued perfectly well behaved for two weeks when he made a rather sensational escape with the aid of another patient, F. W., by climbing up the face of the building on to the roof, allowing himself to be used as a ladder by his associate from the third window to the roof of the hospital building, after which F. W. pulled our hero up after him. They assaulted an officer who was on the roof with a helper from the prison department, passed to another building outside the walled enclosure, went down the outer face of that four-story building by way of the windows, and off into some woods with several officers in close pursuit. It was already dark in the woods, so that it was not difficult for men so clever to elude pursuers for the time being. As it proved, the patients became separated in the darkness and the white man has not been heard from since.

The story of that man-hunt would do for a chapter in a New York *Ledger* serial. There was a meeting with a village sheriff late on the following night, an exchange of confidences, — the sheriff feigning the part of a rural crook, — in which M. F. told of his long sentence, how he had played insane in the hope of escaping, and of his determination not to be taken alive. The fictitious crook volunteered to get some food, of which the other stood in sore need. When M. F. lay down his big stick to take the food, the sheriff drew his gun and ordered "hands up." The hands went up but the head went down to find the sheriff's solar plexus. When the sheriff recovered from the shock, his prospective prisoner had vanished. Later still that night there was a horse missing, — "a hurry of hoofs in the village street, a shape in the moonlight, a bulk in the dark," and a riderless horse cropping the grass on his way leisurely to find his stable early the next morning. This closed the second act.

If M. F. had had leisure to read the morning papers, he might well have been proud or frightened had he recognized himself. The graceful, rather light-skinned mulatto, weighing 180 pounds and standing 5 ft. 10 in., had grown to be a giant negro, with almost superhuman strength and monstrous appetite for lust and blood. When the shades of night came on again, fair cheeks grew pale and strong men hastened to get home before dark. The telephone lines were kept busy. M. F. was located north, east, south and west almost in the same hour. Many men and some boys were hot on the trail of M. F., who usually managed to reach the woods just as the pursuer was about to seize him.

The next scene was laid in the village of Acushnet, a few miles from New Bedford. A dead-tired mulatto lay sleeping under an apple-tree surrounded by four farmers armed with pitchforks. These farmers had read the papers and had noted that a reward of $100 was offered for the apprehension of a desperate mulatto who had escaped from an asylum for insane criminals. This sleeping man "favored" the pictures in the city papers. After a consultation, they decided to wake the sleeper. It was not so easily done, but after some prodding he opened his eyes, yawned, stretched, sat up, blinked in a stupid way, lay back, curled up, and apparently went to sleep again. More prodding brought him to a sitting position again and loosed his tongue. "Let me alone," he said, "the woman told me to come out here and sleep it off." But the suspicious farmers would not desist. The thick articulation and manner were those of a drunken man, but the features were clearly like those of the much-wanted M. F. Finally, they got it out of him that he had been working for Mr. Blank of New Bedford, had been off on a drinking bout, had called at a house in sight for some breakfast, and the woman had advised him to go out in the field and sleep off his booze. His story fitted so well his appearance that it was finally accepted at its face value. No sooner had each farmer gone about his work than the apparant drunk became possessed of all his wits. When alone again he recovered so quickly that one might have supposed the farmers had given him a Keely or Oppenheimer treatment. Without an invitation he entered the house of a newly-married couple, who were absent for the day, and appropriated the young husband's wedding suit. When next seen, M. F. was walking towards New Bedford rather elegantly dressed, in patent leather shoes and other garments to match, carrying a light overcoat over his arm. The young husband found a roll of clothing under his bed that night, on which was stamped with indelible ink, "Asylum State Farm."

The next chapter opens after a period of three months and the scene is laid "way down in Maine." The government post-office at Red Beach had been entered and a watchman shot. Two men had crossed the St. Johns River in a boat which they abandoned on the New Brunswick side. The police of St. John were notified and had John Ashton, a light mulatto, and William Phelps, a white man, in custody when the Maine officers reached the Canadian city. John Ashton proved to be our much-wanted M. F. He was willing to return to the United States and was promptly tried in the United States District Court and sentenced for sixteen years in the Maine State Prison. We understand that no plea of insanity was made at the trial, and, if we may trust the newspaper reports, the court informed the defending attorney that his plea for clemency on the ground of mental derangement would receive no consideration. So it came to pass that M. F. brought up safely in a penal institution of a sister state.

The newspapers said that M. F. made a frantic dash for liberty, attacked the warden, claimed his food was poisoned, and persisted in acting strangely after being sent to the Maine state prison, till the warden took him across his knee and applied a piece of rubber hose, when M. F. cried, — "Enough, I won't be insane any more; it's no use to try to fool you." We have reliable information that the newspapers exaggerated, as M. F. had not attacked the warden up to May 1 last, but he did "commence to play insane soon after his arrival and was 'cured' of that very quickly, since which time he has given no trouble in any way." This information was dated April 30, 1906, and reaffirmed Oct. 13, 1906.* We are assured that the Maine prison officials consider M. F. perfectly sane. We omit the moral and refrain from discussing the "insanity of degenerates." It is doubtless true that M. F. has a bad heredity. That he may some day be truly insane is very likely. That he was malingering at state prison as the committing physician suspected, and after his admission to the Massachusetts Asylum for insane Criminals is almost certain.

Prior to four years ago malingering of this sort, so far as we know, was not an important medical problem in Massachusetts. Of late it seems as if the guild of crooks had endowed a chair of psychiatry in the school of crime. At least it is a fact that more malingerers have been admitted to the State Asylum for Insane Criminals during the past two years than for eight years prior to 1904.

Medical men have grown more and more to accept the view that incorrigibility means mental defect, and clever criminals have been quick to note that vicious conduct leads from prison to an asylum, where there is greater liberty and better opportunities to escape. So it is that progress in one direction has created new difficulties which we are bound to face. Every clever malingerer sent to an asylum for the insane becomes an expert in feigning. He quickly qualifies as a teacher that his profession may keep abreast of the times.

The genuine incorrigible is usually defective mentally and this complicates the situation. The instinctive criminal may be perfectly able to adjust himself to his environments and may not violate prison rules unless he wishes to be thought insane. The bad influence of the incorrigible imbecile on prison discipline is so well-known as to need only mention in passing.

The desperate criminal, possessed of all his cunning and accomplished in the arts of his craft, has an almost unlimited opportunity for mischief in a hospital for the insane and very many opportunities for escape, unless the aim of the hospital as a curative agent be surrendered for prison regulations.

Not a few clever criminals in Massachusetts could give points to medical men concerning symptoms of insanity, and those who plan hospitals for the criminal insane in future should understand with what they must reckon. This we believe is one of the problems created by medical and humanitarian progress.

To the physician interested in penology and psychiatry two great interests overshadow other interests: To prevent disease in penal institutions and provide adequate hospital accommodations for the physically and mentally ill when untoward conditions make preventive medicine unavailing. Tuberculosis and insanity are so closely related, and so easily foremost among the foes we must fight that it seems fortunate that in throwing our forces against the one we do much to discourage and prevent the development of

* The daily papers of Nov. 13, 1906, report the escape of M. F. from the Maine State Prison on the 12th, in a manner similar to his escape from the Massachusetts State Asylum for Insane Criminals, and the papers of Nov. 15 report him still at large and that part of of the state militia have been called out to aid in his apprehension.

the other. We have reason to think that the condition of penal institutions in Massachusetts are comparatively favorable. The death-rate from tuberculosis is very low at the State Prison and State Reformatory and in some of the county institutions where the men serve long sentences.

A great many insane men are arrested and sent to the prison department of the State Farm as vagrants, seemingly because it is less trouble and less expense than to test their mental integrity by due process of law.

We had a hope in 1905 of a new state prison for Massachusetts, on an island not too far from the main land and a trunk railroad line to be fairly accessible and of sufficient area for elbow room and out-door employment for a large percentage of the inmates. We understand the water supply was tested and found good and sufficient. We dreamed of a prison so constructed that every sleeping-room would be flooded by sunlight and freshened daily by an abundance of the purest air. Because of nature's provision against escapes we hoped the narrow windows could be broadened and the heavy gratings of the conventional prison made much less conspicuous. We believed that every workshop and schoolroom could be as light and airy as the best of similar structures for children and laborers of the non-criminal class. We had heard something of the ideals of the prison commissioners and had reason to believe that Massachusetts would have a state prison unique in some respects but especially designed in its construction and location for the prevention of physical and mental disease. Why and how the plans of the prison commissioners, supported by the governor, were for a time at least defeated is another story, of which I am not sufficiently informed to write.

While there is much to be said in favor of an island site for a penal institution, I do not think this would be the best location for a hospital for the criminal insane. To meet all the needs of such an institution we must plan for as many sub-classes as we would in building for the non-criminal insane. The professional house breaker and safe breaker cleverly feigning insanity must be reckoned with. The dare-devil imbecile with a genius for crime, who knows no fear, and holds his own life almost as lightly as he does the life of another, must be carefully detained for society's sake. The demented vagrant with delusions more or less systematized, the insane epileptic, and the general paralytic, possibly sentenced for crimes which they may not remember to have committed, the well-bred man mildly demented, supposed to have recovered from a psychosis in his youth, who repeatedly tries to to cash forged checks and wonders why people should make so much fuss about so small a thing, — all these classes are much in evidence. Then there is the old man of good family and honored service, whose name never bore a stain until he was past sixty, arrested for indecent abuse of female children. Men of his class should be provided for, — not according to the crime. Many of these are technical criminals only, but the courts sometime fail to understand how the finest mental machinery may be responsible for the most immoral conduct when nerve cells degenerate and cerebral blood vessels become diseased. Again, most important from the physician's viewpoint are those acute cases, evolutionary and unpromising they often are, manic-depressive, confusional or toxic, and hopeful they sometimes are.

The State Asylum for Insane Criminals in Massachusetts, which aims to be a hospital in fact, although it has not asked for a change of name, was not designed to securely hold clever malingerers. It has been an evolution from what was intended as an asylum for harmless chronic insane who might help out in the fields when the regular winter boarders at the State Farm were having a summer vacation. But the ever watchful superintendents of the asylums and hospitals for the insane in Massachusetts — they were mostly asylums then — thought the rough acres of the State Farm just the place to which their most turbulent charges might advantageously migrate. It is a familiar story. Medfield Asylum had not then been created. There was not so great a contrast from those "harmless good workers," selected by the faithful assistant physicians and indorsed by the several superintendents of the hospitals for insane of Massachusetts, to the inmates of the State Asylum for Insane Criminals in its earlier years.

Simplicity and economy have been watchwords of the superintendent of the State Farm from before the beginning of the State Asylum for Insane Criminals. Good ventilation and good light for day rooms and sleeping rooms have been secured with forced ventilation throughout the cold weather.

More than 70% of the patients sleep in single rooms. All the buildings occupied by patients are practically fireproof and have been built at less than $650.00 per bed, including furnishings.

We believe these buildings are good enough and suitable for the great majority of our patients, and we do not feel like apologizing for or boasting of what we have. A large use of the labor of prisoners and an exceptionally competent foreman of construction have been important aids in building substantially for ourselves at a very low per capita cost. It is almost certain that the asylum buildings at the State Farm could not be duplicated in brick and stone for the same price to-day. If we were to build again, with the advantage of our experience, we would probably not build a hospital for insane criminals directly on to a prison for disdemeanor cases, lest the graft should grow to be a troublesome burden to the parent stock and suffer in turn like an over-coddled child for lack of opportunity to work out its own salvation. It is an unquestionable advantage all round to use prison labor in building for the insane criminal class. It is surely a disadvantage to have the different classes so closely related that intercommunication is difficult to prevent. It is also a positive disad-

vantage to have the nerve trying duties of an attendant upon the dangerous insane daily compared with the less onerous duties of those who guard sane men serving short sentences for drunkenness or vagrancy. These and other intercurrent influences make against the *morale* of nurses and attendants who care for the criminal insane.

If we were facing the problem of providing for the convict and criminal insane, with no money invested in a plant, we would like to select a hundred acres of rough, high land adjacent to some railroad and abundantly supplied with water. To build economically the prison population of the state ought to be employed, and this means that the work must be done under the auspices of the prison commissioners, or of the State Board of Charity which has jurisdiction over the prison department of the State Farm. But we can build "castles in Spain" and hospitals for the criminal insane, in imagination, without an appropriation or the consent of any one.

We appreciate and sympathize with the sentiment which has torn down the walls of the airing courts which formerly offended the eye in connection with many hospitals and asylums, but in building for six hundred or more criminal insane I would advise inclosing fifty acres or more with a stone wall that could be depended on to keep the public out and the patients in except by suitably guarded exits and entrances. These walls would be so far distant from the buildings as not to suggest the conventional airing court of the old-time asylum at all. If the buildings stood on the highest elevation the top of the walls might be below the level of the foundations of the buildings and still be effective. If the whole surrounding wall was well lighted at night and adequately patrolled there would be little incentive for patients — truly insane or malingerers — scheming with friends outside for saws, or making keys to lead them to liberty. In other words, our outer defenses should be of the most complete prison construction to safeguard the public, while within the gates our construction should be simple and of the most approved hospital designs for the progress of science and the cure of disease.

One hospital building proper, thoroughly equipped after the manner of a complete general hospital, should be within the gates, yet some distance from the asylum buildings. It might have four open wards of fifteen beds each, with fifteen single rooms additional for selected cases. It should have its own kitchen and dining-room, as well as sun room and reading room, and have a trained woman nurse in charge, assisted by the necessary number of men nurses. As an adjunct to this acute hospital building there should be an extensive hydriatic plant with a competent physical instructor in charge who should teach the whole attendant body the art of the masseur and the principles and practice of hydrotherapy and physical training. Not only the acute cases should here be treated, but a considerable percentage of chronic cases capable of physical improvement should be sent here daily as "outpatients" for their own good and for the good of the student body receiving instruction in this department. So thoroughly convinced are we of the value of the so-called physiological therapy that we would count money well spent in developing this line of treatment to its highest plane.

Another specially constructed building, with its own kitchen, sun rooms and broad porches, where patients could be moved on wheeled chairs and beds to sit or sleep in the open air, and wheeled into a warmed room for change of clothing or bedding, would be needed for the tuberculous. Shacks and tents might well help out in summer for selected cases, but there is usually a reason why a man with a sentence should be provided with substantial accommodations.

For other buildings within the gates we would not ask better than duplicates of the more recently constructed asylum buildings at State Farm, except a detached building for the convalescing and the quiet men of good conduct and honorable previous record, who are only technically criminals. This should be apart and have its own dining-room, walks, flower beds in summer and sheltering grove.

Outside the gates, beside accommodations for the superintendent and other medical officers, we would have modest cottages built by the state and rented to married nurses and attendants at a price just covering interest on investment and cost of repairs. A comfortable nurses' home, with reading room and rooms for recreation for those who have not come to their birthright, would be an essential part of the plan. The scheme includes such wages for competent nurses and attendants as will enable a man to marry and live in modest comfort and be retained for years, if competent, as a professional nurse and attendant on the insane.

Such are some of the essential features of the hospital for insane criminals we have built without an appropriation from the stuff of which dreams are made.

GENERAL PERITONITIS. PROLONGED IRRIGATION OF THE ABDOMINAL CAVITY.

BY L. R. G. CRANDON, M.D., AND DAVID D. SCANNELL, M.D.,
Assistant Visiting Surgeons, Boston City Hospital.

PRELIMINARY REPORT.

1. THE rôle of drainage of the whole abdominal cavity is limited, because of:

(*a*) The relative infrequency of universal infection of the abdominal cavity.

(*b*) The chance, by all present methods of drainage, of carrying infection to a part as yet uncontaminated.

(*c*) The insufficiency of present methods of drainage.

2. If drainage has to be established it should be such that:

(*a*) The maximum drainage should take place.

(*b*) The least disturbance to intestines and other viscera should be suffered.

(*c*) The drainage should be continuous, or at least be continual.

(*d*) The drainage apparatus should be removable with the least disturbance.

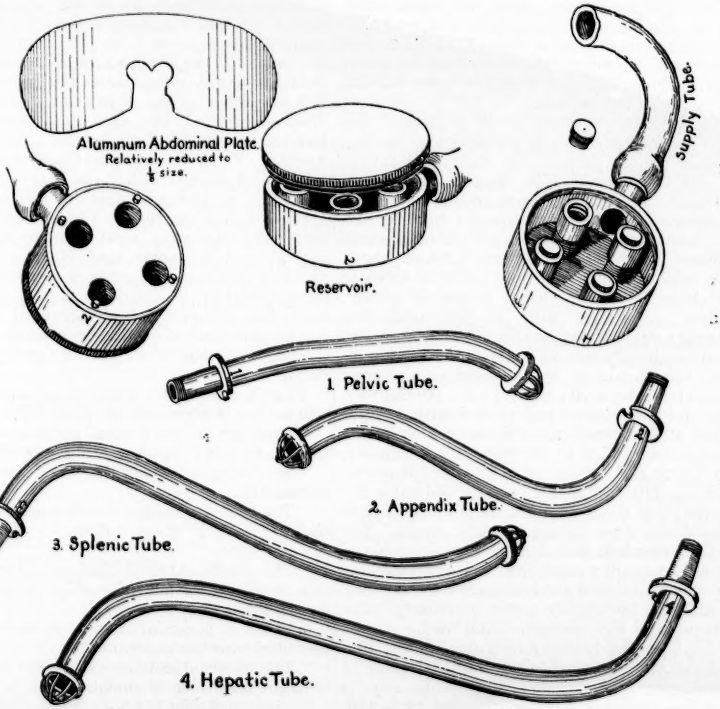
3. The apparatus devised and used.

4. Conclusions on the present status of abdominal drainage.

THE APPARATUS.

Having the intention to wash and drain thoroughly the infected abdominal cavity, with the least injury to, and disturbance of, the abdominal contents, we have devised and used this apparatus.

It consists of a small reservoir (capacity 1 oz.) of nickeled brass supported on an aluminum plate, in its turn resting on the anterior iliac spines. From the bottom of this reservoir emerge four nickeled tubes, 1 cm. in diameter, easily removable and self-retaining.



The tube first to be inserted (the hepatic tube) runs along under the abdominal wall, curves slightly, and ends hanging over the hepatic fossa near the hepatic flexure of the large gut.

The second tube (the splenic tube) runs along beneath the abdominal wall to end over the splenic region.

The third tube (the pelvic tube) runs from the reservoir down into the pouch of Douglas in the female, or between the bladder and rectum in the male.

The fourth tube (the appendix tube) extends along the abdominal wall to end over the cecum.

Each tube, at its exit, is protected by two crossed pieces of nickeled wire to prevent the intestine being sucked into the tube when siphonage is established. From the side of the reservoir runs a rubber tube three or more feet long. The top of the reservoir is a screw-top cap. Into the opening of each tube, at the bottom of the reservoir, may be screwed a brass plug to close one or several of the tubes if needs be. The instrument can be perfectly sterilized, there being no complicated parts.

Use of the apparatus. — The primary cause of the peritonitis is found and repaired or removed if possible. Through a median suprapubic incision, three inches long, the hepatic and splenic tubes are inserted and pushed gently along, lifting the abdominal wall, toward their respective fossæ. The pelvic tube is guided by the finger in its proper direction; and the appendix tube in a similar manner. Each tube as it is put into place is snapped into its proper hole in the bottom of the reservoir.

The bottle of salt solution is now connected

with the distal end of the rubber supply-tube of the reservoir, the fluid passes down through the reservoir out through each of the four tubes, and is allowed to run in until the abdomen is distended and fluid begins to leak through the wound about the reservoir. The supply-tube is detached from the water bottle, pinched at the end at the same time to keep it full of fluid, and is then lowered to below the level of the patient. This column of water in the supply-tube at once establishes siphon-drainage and the abdomen is drained at least till the end of one inner tube is above the level of the remaining fluid.

This alternate flooding and draining of the abdominal cavity can be done as often as one pleases without disturbing the patient, the amount of pressure-influx being regulated by the height of the supply bottle.

Dressings are now applied; the whole apparatus is supported by the aluminum plate which rests on the pelvis, and the patient is moved to bed. Here the abdominal cavity may be flushed out every fifteen minutes, or every hour, or at any interval which may seem best and quite without discomfort to the patient.

This apparatus is mechanically successful, and on the cadaver succeeds in reaching and flushing the most remote parts of the abdominal cavity, and draining them. The proper curves and lengths of these four tubes were determined by measurements and experiments on many cadavers placed at our disposition by the kindness of Professor Dwight of the Harvard Medical School.

We have had opportunity to use it in only one case clinically. This was in a case of general purulent peritonitis with marked distention following a neglected appendicitis. The appendix stump was hastily tied off through the median incision, the apparatus was inserted in a minute and one half, the cavity flushed until the fluid ran clear, and the patient put to bed with the apparatus still in position. The pulse rose during the operation, which in all took twelve minutes, from 124 to 130; about an hour after the operation it was 110. Siphonage was carried out every hour for three times, omitted six hours, and then repeated every two hours for three times. The first fluid returned turbid from several washings, but on the next day came clear as if the distended coils of the paralyzed gut had occluded the tubes. The case was thoroughly septic, practically without hope from any treatment, and died.

It has been clearly shown by Yates,[1] in a careful and exhaustive research, that the total value of general peritoneal drainage, if there be any, is in the first twelve to forty-eight hours, be it with gauze, rubber-dam or other form of wick to promote capillary drainage, or with tubes even though favored by gravitation as through the vagina. General drainage is efficient only for a short time. Whatever the form of drainage used, the foreign body is quickly encapsulated by adhesions of the omentum or intestines. Moreover, the material drained by whatever means employed is not pus or blood, but rather as Coe[2] remarks: "Of course, there is always a considerable discharge of fluid, but this is not the septic material we wish to remove." The free discharge of serous fluid which comes during the first hours of drainage (1) comes not from the general peritoneal cavity, but only from the region drained, and (2) the amount of this drainage seems to be in proportion to the number of wicks. In short, some of the drainage, without question, is excited by the foreign body. In other words, the evidence of the literature and experimental work, such as that done by Yates, seems to show that drainage of the general cavity, excluding thereby localized abscesses, is, on account of the constantly appearing plastic reaction of the peritoneum, mechanically and clinically impossible. The present method of establishing drainage from localized peritonitis, as in the cigarette drain (gauze wrapped in rubber-tissue), is a sign of recognition by surgeons that the main function of the gauze "drain" is to excite adhesion, and thus isolate a septic process from the general cavity.

Yates sums up the objections to attempts at drainage thus: "The most insurmountable objections to general drainage is, however, noteworthy. From the time that Chassargnac's tubes were found plugged with fibrin, in the unconscious admission of Koeberlé that all serous surfaces applied themselves tightly to his tubes, when he made the apertures small enough to prevent herniæ, and by proof that Hegar's theory of capillary drainage by gauze was erroneous, and from clinical experience down to the present time, there has accumulated an array of facts that justify this main objection to general peritoneal drainage; it does not drain the general peritoneum."

Yates's conclusions seem to us mainly sound and we feel it important to quote them in full:

"Drainage of the general peritoneal cavity is physically and physiologically impossible.

"The relative encapsulation of the drain is immediate.

"The absolute encapsulation occurs early (less than six days in dogs), and can be retarded, but not prevented.

"The serous external discharge is an exudate due to the irritation of contiguous peritoneum by the drain.

"There is a similar inward current from the potential into the general cavity.

"This external exudate diminishes remarkably with the formation of encapsulating adhesions.

"These adhesions, under approximately normal conditions, form about any foreign body.

"Their extent and density depend on the degree and the duration of the irritation of this body.

"Primarily fibrinous, these adhesions become organized in a few days (three days in dogs).

"If the irritation persists, they become progressively more mature fibrous tissue.

"After irritation ceases, their disappearance

[1] Yates, J. L.: An Experimental Study of the Local Effects of Peritoneal Drainage. Surgery, Gynecology and Obstetrics, Chicago, 1905, i, p. 477.

[2] New York Polyclinic, 1894, iv, p. 86, quoted by Yates.

depends principally upon a mechanical factor, — the ability of the involved surfaces to pull themselves or to be pulled loose.

"Drains should be the least irritating, and should be gradually but finally removed as soon as possible.

"Irrigation through drains is futile to prevent adhesions, and dangerous.

"After a drain is inserted, all intra-abdominal movements should be reduced to a minimum.

"As soon as the drain is removed, intra-abdominal activity should be stimulated, to aid in the disappearance of the remaining adhesions.

"Peritonitis, if not too severe, possibly aids in the rapidity of the encapsulation of the drain.

"A drain in the presence of infection is deleterious to peritoneal resistance, and should only be introduced to exclude more malign influences.

"Postural methods, unless destined to facilitate encapsulation, are both futile and harmful, as far as drainage is concerned.

"Peritoneal drainage must be local, and unless there is something to be gained by rendering an area extraperitoneal, or making from such an area a safe path of least resistance leading outside the body, there is, aside from hemostasis, no justification for its use."

Being convinced of the general soundness of these conclusions, particularly so far as they bear on the matter of general drainage of the whole peritoneal cavity, we have attempted by our apparatus to prepare a means (1) to irrigate thoroughly the infected cavity, and (2) to supply through the lymphatics of the peritoneum to the toxic blood a large supply of salt solution, to aid the body to fight and to eliminate toxins.

Clinical Department.

A CASE OF DERMOID CYST OF THE ANTERIOR MEDIASTINUM.

BY WALTER A. GRIFFIN, M.D., SHARON, MASS.

The following case is interesting because of the rarity of the condition, Morris, of Ann Arbor, being able to find accounts of but 57 cases in the literature.[1]

The patient, a boy of fifteen years, was first seen by me Aug. 14, 1905, on recommendation of Dr. Clarice J. Parsons, of Springfield. The following history was obtained. Family history: Father's father died of accident. Father's mother died of cancer of the stomach after an illness which lasted more than a year, and which was characterized by sharp pain in the epigastrium. What other symptoms were present could not be ascertained. Mother's father and mother alive and well. Father and mother of patient also well. Personal history: The patient was never very rugged. When three years old he had "catarrh of the bowels," with attacks of constipation alternating with the passage of much mucus and blood. This condition lasted, off and on, for two or three years. This was the only sickness that had ever amounted to anything. Five years ago there was a little hacking cough lasting for a short time, and in last two or three years there have been occasional attacks of coughing, but never any sputa. There has never been any fever so far as known and never any pain except about eight months ago, when complaint was made of pain in the chest, but neither patient nor mother could remember which side was affected. It could not have been very severe since the boy's mother had always taken full care of him and had evidently kept close watch of all symptoms. At about the same time that the pain was noticed the patient began to be somewhat short of breath and to have huskiness of the voice. Some two months ago the patient's mother began to notice that the right side of the chest was fuller in appearance than the left, but she had never spoken of this to any one.

The patient looked pale and rather thin. The general musculature was decidedly below par, and when walking there was well-marked stooping. Physical examination was negative except for the chest. There was dullness on the right side beginning at the second rib, the note rapidly becoming flat on going downward and merging with the flatness of the liver. The dullness extended upward under the sternum to the level of the first interspace and merged to the left with the heart dullness. The respiratory sounds were much diminished over this area and tactile fremitus could not be felt. In back, on the contrary, there was good percussion note throughout on the right side except for slight dullness below the angle of the scapula. Here respiration was broncho-vesicular and tactile fremitus was a little increased. A few fine râles could be heard here (the only ones anywhere to be made out). At the top of the chest on both sides the respiratory murmur was exaggerated. The left border of the heart could be made out two finger-breadths outside the nipple line, and the lower border of the liver was just below the costal margin. In the right axilla there was a gland the size of an almond, and in the right side of the neck there were one or two the size of a pea. Urine and blood examinations were negative. At this time the case seemed to be one of encapsulated pleuritic effusion, or else a malignant growth.

A large-sized aspirating needle was introduced in the fifth interspace in the anterior axillary line and with considerable difficulty about two ounces of thick, glairy, dark-green fluid was obtained. This fluid showed nothing characteristic under the microscope and was sterile on culture after twenty-four hours. On the next day the pleural cavity was opened by removal of a portion of the sixth rib in the mid-axilla. By this means a small amount of the same viscid fluid was obtained. On looking into the wound a tense tumor mass was seen on a level with the incision. Into this a trocar was introduced and more fluid was obtained, together with a number of bright yellowish masses varying in size from a pin head to a pea. By enlarging the opening into the cyst the wall was explored with the finger. It was found to be about a quarter inch in thickness and firm of structure. On that part of the wall which was nearest the diaphragm three or four sessile projections could be felt This was the only wall of the cyst to be made out. A drainage tube was introduced and the operation was terminated.

It did not occur to me or my assistants at this time that we were dealing with a dermoid cyst. Rather it appeared that the case was one of streptothricosis, this idea being suggested by the yellow granules in the discharge. Some of these were crushed under a coverglass, but no

[1] Med. News, Aug. 26, 1905.

definite structure could be made out. Bacterial examination of the discharge also proved negative. Finally some of the discharge was sent to Dr. Henry A. Christian, who suggested the possibility of a dermoid cyst, basing the hypothesis on the finding of two or three short hairs. To prove definitely that these could not come from the surface of the body a little envelope was made by cementing the edges of a piece of rubber dam. This was fitted tightly about the drainage tube by making a small hole in one side of the envelope. After twenty-four hours there were found five small finely tapered hairs in the discharge, one about 2 cm. in length, the others 1 cm. or less. The diagnosis of dermoid cyst was therefore established.

For a while the patient gained in strength, but following a railway journey to his home in Springfield he began to lose ground and after about a month he became greatly emaciated, and so weak that he could hardly walk. Cough proved very troublesome, but there was no expectoration. Fever was also absent. Finally consent was given for further operation, and this was undertaken, although the prospect of getting the patient off the table alive was none too good.

At the second operation a flap was made beginning at the third rib about an inch and a half from the right edge of the sternum and extending downward to the line of incision of first operation (sixth rib), then outward for about four inches and thence upward parallel to first line of incision. All the tissue down to the ribs was thus turned up. The ribs underlying were resected and the pleural cavity was fully opened. Numerous adhesions were found between the pleura and wall of the cyst. In the latter an opening was made large enough to admit the hand. Much pus and broken down caseous material and numerous yellow granules such as were found at the first operation and in subsequent dressings were expelled. By introducing the hand into the cyst it was found to extend from second rib to diaphragm and across median line under sternum at level of about third rib, practically filling the right half of thorax and part of the left. It was filled with irregular grape-like masses, to which grew sparse long hairs and which were attached to the wall by short pedicles and bands of connective tissue. By separating the latter with the hand the masses were drawn outside the cyst, and the pedicles were transfixed and ligated. Two large masses were thus evacuated and several small ones, the total quantity amounting to the size of a small head. No large hemorrhage resulted. Owing to the poor condition of the patient the operation had to be terminated, although there were several small masses still firmly attached to the wall of the cyst, especially high up under the sternum. The cavity was firmly packed and the patient put to bed in what seemed to be a moribund condition. He slowly rallied, however. The temperature never went over 100°, although the pulse ran high. Eleven days after the operation the following note was made:

"Boy has gained steadily since operation of Dec. 8, but is still very weak. Able to walk a little and sits up all day. Is carried down stairs to dinner and supper. Still very much emaciated, but has more flesh than at time of the operation. Has suffered no inconvenience from the wound.

"There is dullness over front of chest from second rib down and extending to left one finger breadth outside the left nipple, and on right gradually down and out into the axilla. Respiration absent over this area, and exaggerated at top of right where there are fine râles. In back resonance and respiration good to base with very fine râles low down.

"The wound presents an opening at its lowest point about two inches in diameter; from this running forward is a large triangular area of granulations, and back of it a smaller triangular area both merging into the united edges of the line of incision. The opening is sunken about one inch from the skin surface, and presents numerous granulating looking masses, and on the lower aspect two knob-like masses apparently covered with epithelium. The finger introduced into the wound found its way upward under the chest wall in a rather tight sinus. Its introduction caused a small amount of pain. Amount of discharge not great and mostly serosanguineous. Temperature 99°. Pulse 120.

"There has been apparently a rapid recurrence of the tumor."

From this time the patient failed very rapidly and died two and a half months after the second operation, the tumor causing great bulging of the chest. No autopsy was allowed. Following is the pathological report of the tumor mass made by Dr. H. A. Christian.

PATHOLOGICAL EXAMINATION.

Specimen from right thorax and mediastinum. Patient of Dr. W. A. Griffin. Operation Dec. 8, 1905, at Springfield.

Specimen consists of two large and two small masses. One large mass measures 16 x 8 x 7 cm., and is coarsely lobulated, and from its surface project masses rounded, slightly pedunculated and measuring 2 to 4 cm. in diameter. The general surface is smooth, except for numerous small tags of tissue, as if the mass had been torn from a connective tissue capsule. There is no evidence of any epithelial covering. The color is gray, flecked with small areas of pink to red. Consistence is tough and elastic. Different parts present no differences in consistence. The cut surface is grayish white, covered by a viscid, glairy, colorless fluid which exudes from numerous small irregular cyst spaces. After the removal of this the structure is seen to be a grayish semitranslucent edematous-looking connective tissue, with here and there coarser bands more opaque and whitish. This tissue surrounds innumerable cysts 3 mm. to 15 mm. in diameter, irregular in shape, free from ingrowths, with smooth, shiny lining. Cysts closely set together. No blood vessels evident in gross, and structure is of uniform appearance throughout.

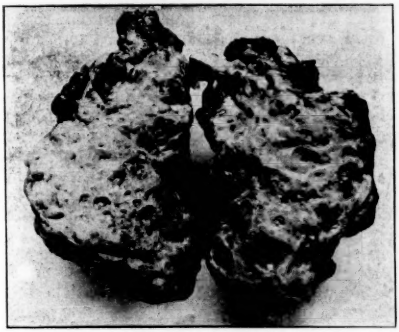
The other large mass measures 8 x 8 x 6 cm., and has attached to it at one side a projecting mass of tissue 7 cm. long, 3 cm. wide and 2 cm. thick, resembling the main mass, which in turn is like the first mass in external appearance. Attached to the other side of the main mass is a thin bit of tissue 3 cm. wide, 2 to 3 mm. thick and 6.5 cm. long at whose end is attached a rounded nipple or fingerlike bit of tissue covered with skinlike epithelium and studded with numerous tapering blond hairs 2 to 4 cm. in length. From this on the under surface of the connecting tissue the skinlike covering extends for 4 cm. toward the larger mass. The cut surface of this second mass has the general appearance of the first, but the cysts are not so numerous and are slightly larger.

Of the smaller masses one 2 x 2 x 3 cm. resembles the larger. The other is a bit of tissue about 2 cm. in greatest diameter covered by skinlike epithelium.

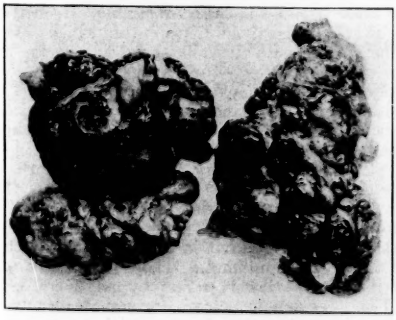
Microscopic. — Pieces from six different parts of the tumor hardened in Zenker's fluid were selected

for histologic study. These were embedded in paraffin, sectioned and stained with eosin and methylene blue and with phosphotungstic acid-hematoxylin.

Section from the nipplelike process described above showed a structure resembling corium with subcutaneous adipose tissue and a covering of epidermis with hair follicles, sebaceous glands and sweat ducts. Sections from other parts of the tumor show many closely packed cysts of small and medium size. The



cysts are lined by cuboidal epithelium, by cylindrical epithelium containing many goblet (mucus) cells and by ciliated cylindrical epithelium, all one layer thick. Other cysts have a lining of transitional epithelium or stratified ciliated epithelium several layers deep. Some cysts show varying types of epithelium in their lining. Most cysts contain a colloid or mucoid content with a few desquamated epithelial cells. A few solid masses of squamous epithelial cells were



found. Between the cysts lie connective tissue, smooth muscle and neuroglia. A very few small islands of cartilage occur. In places there is lymphoid infiltration. The neuroglia in part is very abundant, constituting the bulk of the stroma. Various types of neuroglia occur. Some is made up of wavy parallel fibrils of moderate coarseness. These parts are relatively cell poor.

In other places similar fibrils interlace. Most, however, is composed of more cellular tissue, with poorly defined interlacing fine fibrils, this tissue having a general finely granular appearance. The neuroglia cells have round or oval vesicular nuclei and little or no distinguishable cytoplasm. No multi-nucleated cells are present and no cells of ganglion cell type. Tissue from one part of the tumor is distinctly more embryonal in type. Here cysts are small and stroma more abundant. Most of this tissue resembles the central nervous system of a fetus with small round vesicular nuclei closely packed. Cytoplasmic body of cells not to be made out. Between the nuclei is a granular material staining bluish with phosphotutungstic acid, hematoxylin and only in places revealing distinct fibrils.

Here in places the nuclei become closely packed together and surround an irregularly shaped small lumen presenting a close resemblance to the formation about the fetal ventricles and spinal canal. Here mitotic figures are not infrequent. In places there are areas of cellular connective tissue of fetal type resembling somewhat spindle-cell sarcoma. Cells lining spaces frequently show at their ends dots staining blue or blue black with phosphotungstic acid hematoxylin. At the base of each cilium a distinct dot also occurs.

Diagnosis. — Terato-dermoid. Though in parts embryonal in type and very cellular with evidence of rapid proliferation, it is probably not very malignant and will not metastasize.

Medical Progress.

REPORT ON PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., AND JOHN LOVETT MORSE, M.D.

THE SPINAL FLUID IN ANTERIOR POLIOMYELITIS.

ELLERMANN [1] found twice in the cerebrospinal fluid of a patient with acute poliomyelitis ameboid, homogeneous cells, 15 to 25 micromm. in diameter, with numerous long, fine flagellæ. He thinks they are protozoa. Further investigations must show whether these cells occur constantly in anterior poliomyelitis or whether only accidentally.

Geirsvold [2] found the same bacteria in eleven patients with acute poliomyelitis and one with polioencephalitis. The organism corresponded in every way with those found by Looft and Dethloff in two cases of poliomyelitis.[3] The organism is a bean-shaped diplo- or tetracoccus with the flat sides opposite each other, which in fluid media often forms short chains. It grows well on the ordinary culture media. It is stained by Gram as well as by the ordinary aniline stains. Subcutaneous injections either killed white mice after twenty-four to thirty-six hours, or after being sick some days they apparently recovered only to become suddenly paralyzed after three or four weeks. The paralysis was most frequent in the hind legs. The paralyses increased and at the time of death were accompanied by marked atrophy. Pathological examinations have not yet been made. The virulence of the organism is increased by the passage through mice. Similar paralyses developed in rabbits and pigeons after intravenous injections. They cultivated

[1] Ellerman: Mitteil. aus Blegdamshospital zu Kopenhagen. Hospitalstidende, 1905, 4 R., Bd. xiii, No. 47 s. 1134. Abstract in Jahrbuch für Kinderheilkunde, 1906, vol. 64, p. 254.
[2] Geirsvold: Norsk Magasin for Laegevidenskaben, 1905, s. 1280. Abstract in Jahrbuch für Kinderheilkunde, 1906, vol. 64, p. 254.
[3] Medicinsk Revue, 1901, Bergen.

the same microbe from the pharynx of patients with poliomyelitis. This organism was also pathogenic for mice.

THE BLOOD CHANGES IN MUMPS.

As the result of examination of the blood in twenty consecutive cases of mumps, Wile[4] arrives at the following conclusions:

Lymphocytosis is a constant symptom in mumps.

The lymphocytosis is relative and absolute.

Lymphocytosis is noted on the first day, no matter how small the tumor may be, and continues until all swelling has disappeared.

Lymphocytosis is more marked relatively with bilateral involvement than with unilateral mumps.

Lymphocytosis in mumps is most marked in children at puberty.

Lymphocytosis is present in mumps of adults, but is less accentuated.

The polynuclear neurophiles vary relatively inversely with the lymphocytes.

With orchitic complications, the polynuclear neutrophiles tend to increase relatively, though there may be no absolute leukocytosis.

Hyperleukocytosis does occur in mumps, but is not of high degree.

Lymphocytosis is a diagnostic feature of mumps.

Lymphocytosis differentiates mumps from adenitis.

THE DIGESTION OF FAT IN THE INFANT STOMACH.

Sedgwick,[5] partly as the result of experiments in vitro with the gastric juice of infants and partly as result of experiments on rabbits, draws the following conclusions:

1. There is a fat-splitting ferment present in the infant's stomach.

2. The ferment could be demonstrated very early in life, in the first hours in the rabbit and at least in the second week in the infant.

3. In the infant's stomach itself the milk fat is partially split; in these experiments from 2.9% to 10.6%.

4. After the first half hour the fat-splitting increases slowly but steadily.

5. The acids produced are mostly higher members of the fatty acid series and are derived, in the greater part, from the fat.

QUALITY OF MILK AFFECTED BY COMMON DAIRY PRACTICES.

Speaking of the quality of milk, as affected by common daily practices, W. A. Stocking, Jr.,[6] shows most convincingly that certain procedures fairly common to farmers materially increase the bacterial count in milk. These practices can be easily corrected and the grade of milk improved along inexpensive lines.

The paper deals with methods of feeding cattle, care of the animal at milking time (wiping the flanks and udders off with a damp cloth), brushing the cow prior to milking, rejecting the fore-milk, stripping the cow, and lastly, the advantage of carefully trained milkers over the ordinary men usually seen.

The first experiment showed that animals fed on dry food (grain or hay) at milking time gave higher counts of putrefactive and liquifying bacteria than when they were milked before feeding. The total bacterial count was increased by the average of 1,400, when milked at feeding.

In a second test, animals fed with stover, which is drier and more dusty than hay or grain, showed a total average increase of 2,423 bacteria in the milk as compared with the milk of the same cows milked prior to feeding. Wiping off the flanks and udder of the cows before milking was next found to lower the count by an average of 6,242. No antiseptics were used here, but merely clean water. For this experiment ten animals were used, two lots of five each. One lot was wiped, while the other was not. These two sets were then changed for the next experiment. The animals were extraordinarily clean.

In speaking of the habit of brushing the cows at milking time, the fourth experiment proved the fact that such brushing increased the total average of bacteria by 1,079. The same method was used as in the wiping test. Two lots of animals were alternately brushed each day at milking time, so that the difference of the individual element could be ruled out.

The fore-milk is known to contain great numbers of bacteria, and therefore is rejected by those dairies which are most careful in the milking. Mr. Stocking asserts that this requires a great waste of milk. At least the first six streams from each quarter of the udder have to be thrown out, seeing that they contain from 10,143 bacteria in the first to 2,347 bacteria in the sixth stream. He further shows that this foremilk, in spite of its high count, when mixed with the milk shows an average increase of only twenty-three over milk of the same animals when the foremilk is rejected. The author considers, therefore, that this procedure is not an essential one, and besides causes much waste of good material.

Stripping the cow dry Mr. Stocking asserts is an excellent practice. It markedly lowers the bacteria in number, when compared with milk from the same animals not so treated (that is, when some milk is left in the udder at the end of the previous milking). Those cows that were stripped gave lower counts by an average of 4,779. By stripping, more bacteria are dislodged from the udder, thus less were left behind and so fewer were given a chance to grow than would otherwise happen.

The individual milker has a marked influence on the number of bacteria in cow's milk. It was found that the same animal milked under the same conditions gave a wide difference in bacterial count. The milk collected by five carefully trained men, as compared with that of regular men, showed a difference of 1,932 in favor of the former. This difference can only be explained by the individual care in the process of milking, for the same directions were given

[4] Wile: Arch. of Pediatrics, vol. xxiii, no. 9, Sept., 1906.
[5] Sedgwick, J. P.: Arch. of Pediatrics, 1906, vol. xxiii, p. 414.
[6] Stocking, W. A., Jr.: Bull. No. 42, June, 1906, of Storrs Agricultural Experiment Station.

and practised by both men. This same fact is again shown in a more striking way by contrasting the milk collected by an expert and graduate of the dairy college, and the regular men at work. In nineteen tests the milk of the expert gave an average of 2,455 as against 17,105 found in that collected by the regular men, a difference of 14,680.

From these tests the author considers that the feeding at milking time of hay, grain or stover is bad, as well as brushing the animals, while wiping with a damp cloth, stripping the animals, and the use of expert men for milkers he strongly advocates.

DIAGNOSIS AND PATHOGENESIS OF ADHERENT PERICARDITIS IN CHILDHOOD.

Flesch and Schossberger [7] studied the relics of adhesive pericarditis in children and conducted a series of experiments on dogs to investigate the causes of the symptoms observed. They found that adhesion of the visceral and parietal pericardium always brought on isolated ascites in the dogs. They think that this shows that the adhesion in itself produces a pure portal stasis of cardiac origin, and believe that this harmonizes with what is observed clinically in childhood. They conclude that adhesion of the pericardium in children is often characterized by a special symptom complex. The most striking symptom is the excessive isolated ascites. In addition, there is slight edema of the face, pallor, cyanosis of the lips and ears and enlargement of the liver. None of the symptoms point to the heart except a small, rather rapid, pulse. On account of the constancy of these symptoms, this form of adherent pericardium presents an easily recognizable clinical picture. The cyanosis does not subside after tapping. The ascites precedes edema in the extremities. Adhesive pericarditis does not always cause this clinical picture, but when this picture is observed, an adherent pericarditis can be safely diagnosed.

A STUDY OF INFANTILE ATROPHY.

Bloch [8] first properly defines infantile atrophy and distinguishes it from wasting secondary to other diseases. He then refers to his investigation of three other cases [9] in which pathological changes were found in Paneth's cells in Lieberkuhn's glands. In this article he reports three new cases in which the same methods of formalin fixation were employed. In one of these cases changes were found only in Paneth's cells. In the other two these cells were normal. In both cases there was a slight round-cell infiltration of the gastric mucosa, in one a slight loss of substance near the pylorus and in the other slight traces of catarrh about the cecum. These changes were, however, so slight as to be unimportant. Marked changes were found in the pancreas, however. Granulations were almost entirely absent from the gland cells which were otherwise normal. There were no evidences of degeneration or inflammation.

He quotes the literature of the subject and also some experiments which he made with calves at different stages of digestion, which show that this condition is an abnormal one and is never found at any special stage of digestion. The absence of this condition in other cases of atrophy shows that it is not a result of the diseased condition but its cause. This condition of the cells shows that the pancreas was not in a condition to functionate. Previous examinations of the feces showed that the pancreas was not secreting and had not been for some time.

He has now investigated 6 cases of infantile atrophy. In 4 evidences of intestinal hypochylia and in 2 of pancreatic achylia or hypochylia were found. These conditions most evidently cause a faulty utilization of the food and in this way cause atrophy.

His cases were all young infants. They were all born normal but received either insufficient or indigestible food. Besides this they had had repeated attacks of intestinal catarrh. It is easy to understand how these conditions, which acted partly by weakening the organism and partly by weakening the intestinal and pancreatic glands, brought on an insufficiency of the glands which ended in achylia. In older children, in whom the gland secretion is better established and richer, it is easy to see that such changes develop with much greater difficulty.

The course of infantile atrophy may be divided into three stages: the first in which there is an intestinal catarrh with frequent, thin mucous stools and in which there is fever and severe constitutional symptoms; in the second stage the intestinal catarrh diminishes, the stools are of better character, the temperature is normal and the child can again take milk. Dyspeptic symptoms, however, persist. These dyspeptic symptoms are more or less evident throughout the whole course of the disease. They gradually change over into the atrophic, in which the child loses weight more and more rapidly and in which the atrophic appearance develops. On the basis of the mortality and course of the disease it is certain that this insufficiency of the glands of digestion is present not only in the atrophic but also in the dyspeptic stage, only in less degree. It is evident, therefore, that on the basis of clinical and anatomical investigations certain forms of chronic dyspepsia or intestinal catarrh are due to the same cause as infantile atrophy, namely, a faulty functioning of the serous digestive glands.

FOOD FEVER IN CHILDREN.

Smith [10] describes a series of cases of sudden pyrexia accompanied by more or less disturbance of digestion. The fever may last from a few days to a few months, recurring frequently and thus producing an injurious effect on the nutrition. The patients are usually neurotic and from three to twelve years old. They have fre-

[7] Flesch and Schossberger: Zeitschr. für klin. Medizin, 1906, vol. lix, no. 1.
[8] Bloch: Jahrb. für Kinderh, 1906, vol. lxiii, p. 420.
[9] See Boston Medical and Surgical Journal, 1804, vol. cl, p. 44.
[10] Eustace Smith: Brit. Med. Jour., Feb. 10, 1906.

quent headaches, with or without vomiting, associated with occasional looseness of the bowels. They almost always have some disturbance of digestion. The tongue is frequently coated; they are listless and the fever runs between 101° F. and 105° F., the stomach tympany reaches higher than normal and the liver is palpable one to two fingers' breadth below the costal border. The urine is febrile in character. When the condition is untreated, or is improperly treated, the fever persists for several days, irregularly elevated and falls either by lysis or crisis. It falls directly after calomel but usually remains slightly above normal for several days. The fever is higher after meals than in the evening. The patients are usually irritable by day and restless by night. The appetite is poor. Those having rare attacks usually recover their customary health in a short time. When the attacks recur every six weeks or so the nutrition suffers, and the children become pale and thin and suffer from poor circulation. Convulsions may appear in neurotic patients, and persistent vomiting simulating periodic or recurrent vomiting may be a persistent symptom and may or may not be associated with epigastric or umbilical pain. That pain may be very intense. Occasionally symptoms of intestinal catarrh are seen and mucus and blood are found in the movements. Tuberculosis is often considered by the physician. The diagnosis depends on the history, the irregular course of the fever with intervals of comparative health and the presence of undoubted signs of gastro-intestinal indigestion.

The author advises a careful diet, especially as regards carbohydrates, for the prevention or cutting short of the attacks. Food causing fermentation should be withheld. Starches and sweets must be given with care. Milk should be restricted or cut off for a time. Acids in the form of fruits are bad. He favors mutton, poultry, fish, green vegetables, butter, bread, toast and cereals, also salty foods and bacon. He also advises careful hygiene, much fresh air and proper clothing.

(The condition described above apparently corresponds pretty closely to what is known as sub-acute or chronic duodenal indigestion.)

THE WEIGHTS OF THE VISCERA IN INFANCY AND CHILDHOOD, WITH SPECIAL REFERENCE TO THE WEIGHT OF THE THYMUS GLAND.

Boviard and Nicoll[11] made autopsies on 571 cases at the New York Foundling Asylum, 438 being under two years, the rest from two to five years.

In 495 consecutive cases they made careful examinations of the thymus. The most striking thing in this connection was the remarkable variations in the weights of the thymus. Such wide fluctuations were not seen in any other organ of the body. The average weight was 5.9 gm. It is evident from the regularity of the averages at the different ages that there is no decrease in weight during the first five years of life, that is, there is no true atrophy of the gland. There does, however, take place an involution or gradual change in both the appearance and structure of the gland during this period. While this involution is the rule with increasing years, the thymus may persist in the infantile state or even continue to grow, maintaining the infantile characters. This gives rise to the condition spoken of as "persistent thymus," a condition which is regularly a part of the dyscrasia now known as status lymphaticus. Section of the thymus in these cases shows no distinct difference except in size from the normal conditions in infancy. The involution which occurs with increase in age cannot be distinguished from that caused by wasting diseases. The wasting disease seems to cause actual absorption of the thymic tissue. Though more marked in diarrheal diseases and marasmus, this involution with loss of weight is not peculiar to those conditions but occurs in any disease accompanied by exhaustion and reduction of the body weight. Their data shows clearly that the old statement that the thymus continues to grow or increase up to the end of the second year and then atrophies, is not correct. They draw the following conclusions:

1. The study of the average weights of the viscera in infants and children up to the age of five years shows that there is a constant relation between the weights of the more important viscera, thus:

(*a*) The weight of the liver will average seven times that of the heart.

(*b*) The weight of the spleen will average 1–10 that of the liver.

(*c*) The weight of the kidney will average 1–9 that of the liver.

2. That the weight of the thymus gland as commonly given is excessive, owing to the acceptance of pathological glands as the standard for normal conditions.

3. That the average weight of the thymus at autopsy is approximately 6.0 gm.

4. That there is no evidence of a growth of the thymus after birth under ordinary conditions, but that under special conditions the gland does grow and even hypertrophy enormously.

DIAGNOSTIC VALUE OF THE LEUCOCYTE FORMULA IN PERTUSSIS.

Churchill[12] draws the following conclusions:

1. A general leucocytosis is present in almost all cases of whooping-cough.

2. A lymphocytosis, *i.e.*, an increase in the number of lymphocytes is found in about 85% of cases at some time during the course of the disease.

3. A lymphocytosis is found even more constantly during the early or cartarrhal stage, over 90% showing the phenomenon at this time.

4. A lymphocytosis is found usually in those conditions difficult to distinguish from whooping-cough.

5. Therefore, the presence of a lymphocytosis in a child with a hard persistent cough is a factor

[11] Boviard and Nicoll: Arch. of Pediatries, vol. xxiii, Sept., 1906, no. 9.

[12] Churchill: Jour. Am. Med. Asso., May 19, 1906.

of great diagnostic value. It is also of prophylactic importance, inasmuch as it can be utilized to prevent the spread of the disease by leading to the prompt isolation of the patent.

6. The child's age must be taken into account in estimating the importance of the lymphocyte percentage.

Reports of Societies.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-second Annual Meeting, Held at Hot Springs, Ark., Nov. 6, 7 and 8, 1906.

(Concluded from No. 26, p. 781.)

RETROVERSIO-FLEXIONS, IN THEIR RELATION TO PREGNANCY.

Dr. Channing W. Barrett, of Chicago, said the accompanying diseases of retrodisplacement might cause sterility, but this was by no means constant. What might be expected from those cases in which pregnancy took place or in which retrodisplacement followed pregnancy? There was apt to be an increased displacement, with aggravation of symptoms, and then one of four things might occur: 1. The uterus might return to normal position and the symptoms be relieved or disappear. 2. Abortion might and frequently did follow. 3. Incarceration might take place, causing abortion, retention of urine, sloughing of portions of the bladder, peritonitis, etc. 4. Pregnancy might continue to term, with the uterus still retroflexed, causing only moderate, mild, or almost no symptoms. This condition might become a complication of labor.

The treatment to be advised should be based upon the present conception of the value of different methods of treatment for retrodisplacement; of the danger or absence of danger of radical cure; of the tolerance of pregnant women for an operation; of the value of the life of the child, and, lastly, the method of operation. It must not be based upon a conception of these matters fifteen, ten or even five years ago. If we could make a laparotomy fairly safe, if this danger was only slightly increased in the pregnant woman, if the rights of the child were recognized, and an operation could be performed which prevented the possibility or probability of a return of the displacement after delivery, then would cases of beginning incarceration or threatened abortion be operated upon early. Last resort, surgery, in this as in other conditions, would be less popular.

The writer called attention to the early replacement of the uterus in cases of retroversion, retroflexion, and the holding of the uterus with a pessary, if necessary; to the value of an anesthetic; to the knee-chest position, etc. In cases of beginning incarceration he condemned the practice of producing abortion in the interests of the child, and likewise condemned the method of puncturing through the posterior cul-de-sac in the interests of the mother, saying that the puncture might be so located as to be equivalent to rupture of the uterus into the peritoneal cavity.

In the light of our present-day aseptic technique, tolerance of pregnant women to operation, and our present methods of permanently curing retrodisplacement without creating new pathology, he entered a plea for more early and efficient treatment of these cases.

Ventro-suspensio-fixation was condemned. To operate upon these cases when most advantageous to the mother and child, the operation must offer the following safeguards and advantages: 1. It must be safe for the mother. 2. It must decrease the fetal mortality. 3. It must insure or promise a permanent cure for the retrodisplacement. If these conditions were secured, instead of pregnancy being a bar to an operation, it might at times furnish an urgent argument for an operation.

The writer briefly reviewed his method of operating for retrodisplacement as giving the above advantages. Two cases were described illustrating the necessity for operation, one of which was a case of extreme incarceration, and one of early pregnancy manifesting symptoms of abortion in which there were adhesions and an ovarian cyst.

The paper summed up the writer's position in the following conclusions: "1. Retroversio-flexion is a pathological condition worthy of appropriate treatment, operative or non-operative. 2. Pregnancy may be the means of cure of retroversio-flexion, but may, on the other hand, seriously complicate the condition. 3. The retrodisplaced pregnant uterus should be replaced as soon as possible, and, if necessary, held in position by means of a pessary. 4. A retrodisplacement during the early weeks of pregnancy that cannot immediately be replaced should be supervised and efforts made to assist its return to a normal position as growth advances. 5. An irreducible retrodisplaced pregnant uterus that shows beginning signs of intolerance or incarceration should have a radical operation for the retrodisplacement rather than be emptied or punctured. 6. In cases of inevitable abortion, the uterus should be emptied and the retrodisplacement corrected, if possible, the radical operation following later, if necessary. 7. Cases of marked incarceration should have the benefit of abdominal section unless abortion is inevitable. 8. Cases operated upon should have the radical operation for the retrodisplacement if the conditions are such as to warrant its performance. 9. Should a retrodisplacement correct itself, or be corrected during pregnancy without operation, it should be carefully supervised after confinement with a view of permanently correcting the malposition."

TOXEMIA OF PREGNANCY.

Dr. D. M. Hall, of Memphis, reported a case of toxemia of pregnancy and in reviewing it said there were several unusual features about it. There was a clear history of an attack of uremia with the usual symptoms of edema of the lower extremities, suppression of urine, albuminuria, headache, blindness and convulsions. Several years later a similar attack occurred during the eighth month of pregnancy, but whether this was uremic or eclamptic was questionable. Later on an attack came on suddenly during the second month of pregnancy. This attack was accompanied by nausea, vomiting, headache, intense aching and restlessness, suppression of urine, albuminuria, diminution of urea and acute splenitis, but no edema, blindness or convulsions. During the eighth month of this pregnancy there was a sudden attack of nausea, attended by vomiting, intense aching and restlessness; pain and tenderness over the liver; lessened quantity of urea and urine; but no splenitis, headache, blindness, albuminuria, or convulsions.

BLUNT DISSECTION IN PLASTIC GYNECOLOGICAL OPERATIONS.

Dr. T. J. Watkins, of Chicago, said the advantages usually claimed for blunt dissection with scissors over the method heretofore in use of denuding in strips were, first, that very much time was saved; second, raw surfaces were made which would give firmer union. The operator got down into muscular and connective

tissue much better than by denudation; third, there was less hemorrhage.

PUBIOTOMY AND ITS RELATIVE INDICATIONS.

DR. E. B. MONTGOMERY, of Quincy, Ill., said that his interest in this operation had its beginning from the fact that he was obliged to do it in 1903, to enable him to deliver a child which was impacted in the pelvis in a mento-posterior position. Examination of the literature of the subject showed him that no such procedure had ever been resorted to in this country for such a condition, nor had a lateral section of the pubis for any condition before been made on this side of the Atlantic. Satisfied with the outcome in this case, he began a thorough investigation of the literature of the operation of Gigli, and presented this in a paper before the obstetrical section of the Fifteenth International Medical Congress, held in Lisbon, in April of this year. The results in the 134 cases collected by him from 35 different operators were uniformly favorable, in that there were no deaths in cases not previously infected, and all patients recovered with perfect union of the bone and with perfect gait.

An indication other than contracted pelvis for the performance of pubiotomy was the occurrence of an impacted mento-posterior face presentation in which a change of position could not be effected by the Volland or other procedure. In the case reported by the essayist a lateral section of the pubis was done, and labor terminated by delivery of a living child with forceps. The mother made an excellent recovery.

OPERATIVE WORK FOR HYPERTROPHIED PROSTATE.

DRS. BRANSFORD LEWIS and C. E. BURFORD, of St. Louis, Mo., contributed a joint paper on this subject, cited illustrative cases and exhibited a number of interesting specimens. They presented the following conclusions: "1. Prostatic cases, if correctly estimated and judiciously treated, are now among the most satisfactory that seek the aid of the surgeon. 2. Diagnosis, both accurate and comprehensive, is essential to the attainment of such success and satisfaction. 3. Not all cases of enlarged prostate produce obstruction. 4. Not all cases, even though producing obstruction, require operation. 5. Not all cases that are producing obstruction and do require operation demand the same operation. 6. Not all cases of prostatic obstruction are produced by enlargement or outgrowth; some are produced by definite contraction of the vesical neck, no hypertrophy being present. It is impossible to determine such conditions by palpating per rectum only. 7. The retrograde cystoscope is the most serviceable aid attainable in determining these questions, in respective cases; hence its value in this work is inestimable. 8. Experience proves that neither advanced age, depression of health nor disease of the heart or kidneys debars the patient from the hope of operative relief. Operation reclaims many, even after they have suffered uremic attack. 9. The longer required operative measures are postponed, the greater the likelihood of establishing spreading infections and renal involvement, conditions much less amenable to surgical relief than simple obstruction at the vesical neck. 10. Three weeks should be sufficient to demonstrate how much may be expected from palliative treatment, after which any operative treatment necessary should be carried out as soon as possible. Delays are dangerous."

CLINICAL PSYCHOLOGY.

This was the title of the address in medicine, which was delivered by DR. FRANK PARSONS NORBURY, of Jacksonville, Ill.

In all ages man had sought to solve the mysteries of his own ruling mind. The researches of to-day had translated the science of mind from terms of the metaphysician with its confusing verbiage to words that signified something by defining the facts of physiological psychology, psychophysics and clinical psychology. Mind to-day was studied from the basis of the general law laid down by James, namely, that no mental modification ever occurred which was not accompanied or followed by a bodily change. The brain itself did not act (it is a passive organ), but reacted to stimuli through the peripheral sense organs, thus creating a reflex either in the sensory, motor, or higher psychical cells. Psychology endeavored to study these reactions. Herbert Spencer, in his "Synthetical Psychology," laid the foundation for these studies both normal and morbid. Drs. Hughlings Jackson, Charcot, Mercier, Janet, Wundt, Maudsley, Wernicke, Krapelin and others had applied these principles to clinical medicine.

Speculative psychology had no place in the modern new psychology. Physiological psychology, aided by the co-ordinate science of physics had overcome the dissatisfaction growing out of introspective psychology. It had raised the physiological unit, as stated by Mercier, namely, "That a nervous process which, when transmitted to muscles, issues in a movement, and is accompanied by a mental state," to the higher power, as shown in conduct. Conduct was the criterion of soundness or unsoundness of mind. It was the product of innate character, of environment, of experience and numerous other modifying conditions.

Refined methods of analysis applied in the study of sensation, of perception, of memory, of thought, of feeling; and of the disorders of the will revealed mind in its constitution. In analytical study it was necessary to note negative as well as positive results.

These methods applied to the borderline anomalous mental states, viz., the neurasthenic, the psychasthenic, the hysteric, the epileptic, enabled us to define their full clinical significance. We should follow the clinical methods of Janet in studying these very varied mental anomalies.

A clinical résumé of these states was given, emphasizing Janet's dictum, that we must know well the patient, his life, his education, his disposition, his ideas. We must study his acts, his words, written and spoken, in formulating a basis for diagnosis. Heredity was not considered in these studies with the same degree of insistence as that advocated by Morel.

Therapeutic methods resolved themselves into the personality of the physician, his consideration, patience and earnestness; his ability to take a broad educational view of the whole subject and apply wholesome, helpful methods both in the physical and mental considerations. In no place in our therapeutic art did we find a greater call for the highest application of educational means and methods than in the treatment of nervous disorders, as found in the psychoneuroses. The educational growth of character was imperative. Moral education preceded mastership in every act, because the training which mastery involved reacted upon character, gave it steadiness and solidity.

Educational methods alone would not give the results; we must build up, overcome the fatigue bodily, intellectual and emotional. This required fat and blood, strength and equipoise. The connection between sane living and sound work was a psychological and physiological necessity.

SURGICAL PRINCIPLES AND THEORIES.

This was the title of the address on surgery, delivered by DR. F. F. LAWRENCE, of Columbus, Ohio. He said that surgery was either an art founded upon exact science, or it was a gigantic fake founded upon empiri-

cism. Every science was and must be founded upon principles which were as enduring as truth. Every principle, every truth, must be preceded by theory, which was only another word for ideal. To make our theories or ideals conform to truth, and exemplify a scientific proposition, was to convert that theory or ideal into a fact. To sacrifice on the altar of personal vanity or ambition one jot or tittle of truth or science was to sacrifice the entire principle. Empiricism had been the foundation of quackery from the earliest days, and to encourage, practice or teach any of our surgical methods empirically was to justify and father quackery. It was unreasonable, therefore, to expect that any man could put into practice a scientific principle if he knew not a thing about any of those sciences upon which surgery rested, namely, philosophy, anatomy, physiology, pathology, psychology, embryology and biology, together with those collateral branches, — chemistry, histology, bacteriology and therapeutics.

The human body should be viewed as a machine. Its surgical or medical repair should be based upon the idea of the province of a thorough mechanism. There was no part of the body which was not constructed on a true philosophy, and its repair required a knowledge of natural philosophy. All the other ologies and osophies were useful only in determining the need and character of repair, hence any surgical effort not philosophical was unsurgical. Teaching of the principles upon which the treatment of a surgical case was based should be the most attractive as well as the most important part of the physician's efforts. To accomplish this methods of teaching and practice should be consistent, and both could be revised with benefit. Traumatism should be given the consideration due its importance as a factor in infection. Fads and fancies should not command the respect of the profession, and non-essentials should not be given prominence in teachings. Surgery should be taught as an art which rested upon exact or scientific principles; hence one in which philosophy was equally important with pathology, and anatomy of greater import than the microscope, although the latter was a necessary adjunct. A man might be a good physician but a poor surgeon. The converse, however, was not true, for a man could not be a surgeon who was not a good physician; hence a special qualification might be advantageous. Hospital construction and hospital management should be consistent with the teachings of hygiene, segregation of patients, isolation of infected cases, space per bed, and all minor details should be worked out by men trained in sanitary science instead of by architects and other laymen. Endowments for the working out and proving surgical principles and honors to the workers might be worthy of serious consideration. The one great principle, that a surgical condition was always surgical, should be constantly emphasized to the end that *dernier ressort* operations might cease to be the bane of the profession and the boon of the undertaker.

PRESENT OPERATIVE NECESSITIES FOR CURE IN TUBERCULAR ORCHITIS.

DR. CHARLES E. BARNETT, of Fort Wayne, Ind., in summing up, said: " (1) To be sure of a cure, all that is infected with tuberculosis must be removed. (2) Primary invasion statistics are so variable that the operator should consider his testicular tuberculosis as primary unless other foci are found that disprove the supposition. (3) The modes of infection are so many that the surgeon should be on his guard constantly. This is especially true in infection during the act of cohabitation. (4) The desexation bugbear should be entirely removed from the patient's mind, and instead hope should be given him for a continuation of his copulative power. (5) Injections of paraffin in producing artificial testes are good from a cosmetic standpoint, and good also from the great satisfaction they give the patient. It is entirely devoid of danger when properly done. (6) Operations, when indicated, should be immediate, followed by prophylactic and hygienic treatment until the maximum improvement is gained."

The author gave the operative technique used by him in double orcho-vasectomy, and showed how comparatively easy it was to extract the vas deferens from along its course even down to the ejaculatory duct region. He reported two cases to illustrate the post-operative benefit gained. One of them was injected with paraffin, according to the Gersuny method of small quantities at a time, with frequent sittings. The artificial testes were, from the standpoint of size, location and permanency, all that could be desired.

HEAD INJURIES.

DR. WILLIAM BRITT BURNS, of Memphis, Tenn., reported three cases of head injuries which had a bearing especially on injuries of the middle meningeal artery.

NON-LITHOGENOUS OBSTRUCTION OF BILIARY DUCTS.

DR. A. H. CORDIER, of Kansas City, Mo., said that for years gallstones were the only condition that received much attention from the pathologist and surgeons. Further clinical study, operative and post-mortem findings, had demonstrated beyond doubt that gallstones were the result of a pre-existing disease of the ducts and gall bladder, and that in the great majority of instances this disease was of bacterial origin. It was claimed that those of sedentary habits, and insane patients were especially prone to the formation of gallstones, and that at post-mortems a large number of gallstones were often found in patients who had died of other diseases, and who during life had not manifested any symptoms of gallstones. This later statement was used by some even to-day as an argument against the surgical management of these cases. Gallstones did not form in a few days; they were late manifestations of a pre-existing disease. The gallstone cases with which the profession was familiar presented typical histories.

The author spoke of stricture of the common duct, saying that it might have its origin in the long incarceration of a stone, the stone later passing into the duodenum or ulcerating into the bowel. In that event no stone would be found at the time of operating. Numerous instances of this kind had been reported.

Drainage of the gall bladder externally would become less and less a procedure resorted to as surgeons appreciated more that the gall bladder, like the appendix, when full of strictures, was best taken care of in a specimen bottle filled with a good preservative.

There was a class of cases presenting an obscure train of symptoms pointing to the vicinity of gall bladder and biliary ducts as their source. For instance, a vague sense of uneasiness; occasionally painful spells lasting a few minutes, with attacks of indigestion and painful flatulency. At the operation no stones were found; no stricture of the ducts was discovered; no visible changes in the gall bladder were discernible; in fact, nothing was detected except a few adhesions between the cystic duct and common duct or duodenum. A separation of these adhesions, with a liberation of the bound-down ducts and viscus from the constantly nagging, distended stomach and intestines, would, as a rule, bring relief to the patient.

If an obstruction was located in the cystic duct, and the gall bladder escaped, the usual contraction due to the presence of a cholecystitis, this viscus might con-

tinue to manufacture mucus, and if infected, as it usually was, a muco-purulent distention took place, and a pyriform retention cyst was produced, usually detectable below the border of the liver in emaciated patients. In this condition jaundice was absent, and the patient would have fever and stomach and intestinal digestive disturbances. These cases were especially liable to recurring attacks of fever, as the absence of bile in the gall bladder robbed nature of one of the most efficient inhibiting bactericidal fluids. These were fit cases for a cholecystectomy, as drainage of the gall bladder was too uncertain in its curative effects, the opening either refusing to close, or if it did close, the symptoms were renewed.

Where the complete obstruction of the duct was the outcome of a long impacted stone resulting in a cancer, the diagnosis of the latter was extremely difficult before operation. Cancerous obstruction occurred most frequently in the lower portion of the common duct. This was likewise the location of most lithogenous obstructions. In determining the existence of an obstruction, its location, extent, character and time of operating, he had for fourteen years resorted to hydrostatic pressure, by introducing through an aspirating needle into the gall bladder a saline solution from a moderate height, or if this viscus had been opened, the nozzle of an irrigating syringe, or if the common duct had been opened, by irrigating directly into the duct. In cases where the duct was embedded in a mass of adhesions and had lost its identity, it could be made to stand out distinctly by water pressure introduced through the gall bladder, provided the cystic duct was patent. By this same process the patency of the duct, after removal of one or more stones, could be determined, as he had on several occasions run rather a large quantity of saline solution directly into the duodenum through the gall bladder, cystic and common ducts. As a means of determining the security of the duct stitching, where the opening in this canal was closed by suture, this method was invaluable, as disappearing stones and other débris could thus be washed out of the biliary tract.

The following papers were read and discussed: "Gallstones, Report of Two Cases," by Dr. J. H. Barnett, of Pikeville, Tenn. "Pruritus of the Anal Region," by Dr. Bernard Asman, of Louisville, Ky. "Diagnosis and Treatment of Brain Traumatism," by Dr. John N. Sluss, of Indianapolis, Ind. "Asthma with Mixed Infection Following Repeated Attacks of La Grippe," by Dr. Wm. F. Waugh, of Chicago. "Some Medical Notes on Frontal Sinusitis," by Dr. A. E. Prince, of Springfield, Ill. "The True Cause of Functional Neuroses," by Dr. G. G. Buford, of Memphis, Tenn. "A Possible Explanation of the Formation of Drug Habits," by Dr. H. A. Rodebaugh, of Columbus, Ohio. "Specific Treatment of Tuberculosis Pulmonalis," by Dr. E. G. Epler, of Fort Smith, Ark. "Report of Cases of Probable Maternal Impressions," by Dr. J. Madison Walton, of Memphis, Tenn. "Some Clinical Observations in Tuberculosis," by Dr. Wm. Porter, of St. Louis, Mo. "Eye Findings in Arteriosclerosis," by Dr. Geo. F. Suker, of Chicago. "Remarks on Combined Degeneration of the Spinal Cord," by Dr. Hugh T. Patrick, of Chicago. "The Entoning of the Psychic Neurons in Neurotherapy and in General Therapeutics," by Dr. C. H. Hughes, of St. Louis, Mo. "Yellow Fever and Mosquitoes in New Orleans in 1905," by Dr. Quitman Kohnke, of New Orleans, La. "Operations for Pyothorax," by Dr. Spencer Graves, of St. Louis, Mo. "What to do in the Presence of Obscure and Persistent Abdominal Symptoms," by Dr. H. H. Grant, of Louisville, Ky. "Etiology, Pathology and Operative Treatment of Deformities of the Face and Mouth due to Malrelations of the Face and Jaws," by Dr. V. P. Blair, of St. Louis, Mo. "Successful Obliteration of Hemangioma Cavernosum of the Upper Lip," by Dr. Francis Reder, of St. Louis, Mo.

DRS. MARTIN F. ENGMAN and W. H. MOOK, of St. Louis, Mo., gave lantern slide demonstrations of the spirocheta pallida in various sphilitic lesions.

OFFICERS.

The following officers were elected for the ensuing year: President, Dr. H. H. Grant, of Louisville, Ky.; vice-presidents, Dr. Barr, of Hot Springs, Ark., and Dr. T. C. Witherspoon, of St. Louis, Mo.; secretary, Dr. Henry Enos Tuley, of Louisville, Ky., re-elected; treasurer, Dr. Samuel C. Stanton, of Chicago, Ill., re-elected.

Columbus, Ohio, was selected as the place for holding the next annual meeting; time, October, 1907.

Book Reviews.

The Subconscious. By JOSEPH JASTROW, Professor of Psychology in the University of Wisconsin. Boston and New York: Houghton, Mifflin & Co. The Riverside Press, Cambridge. 1906.

In this volume of 549 pages Professor Jastrow offers to the public an easily understood and semi-popular account of that range of phenomena which are included in the general term, "subconscious." In undertaking this task he divides his subject matter into normal, abnormal, and theoretical. Under the normal section he discusses the function of consciousness in the nervous system, and various matters pertaining to the subconscious activities. Under the section relating to abnormal conditions he goes over the modern theories of dissociated consciousness, the genesis of altered personality, and the disintegrating lapses of personality. Finally, under the theoretical heading, he discusses the conception of the sub-conscious, and the sub-conscious as abnormal.

The book is a useful one for students of psychology, and may well find a place in the library of the physician who desires, as he should, to be informed of a certain very significant trend of psychological study having a distinct bearing upon pathological mental conditions, as met with in the ordinary practice of medicine. The book is somewhat verbosely written, but requires no special psychological training.

Etudes sur le Traitement des Fractures des Membres. Par FR. GUERMONPREZ (de Lille). Notes recueillies et mises en ordre par les Docteurs J. GAILLOUX, L. EISSENDECK, J. FAIDHERBE, A. DAVID, L. MERVEILLE et AD. PLATEL, et revues par le Professeur. J. ROUSSET, Editeur. 235 illustrations. Paris. 1906.

This volume of 1644 pages is a treatise on the treatment of fractures of the upper and lower extremities. The chief points presented are the mechanical features in the treatment of fractures,

such as massage, passive motion, thermo-, electro- and mechano-therapeutics. It is not a manual or résumé of current ideas. The fundamental idea of the work is to harmonize its treatment with the anatomical conditions of a fractured limb. The chapters are written by different authors and express in different ways the same principle of treatment. Some of the chapters are short and treat subjects on which there is little difference of opinion. Others are more extended, especially those devoted to the employment of massage and early passive motion. The author criticizes routine immobilization. He contrasts "mobilization" as he terms it, and immobilization, massage and fixed apparatus. The chapters which attract most attention in the work are those which describe the subject of thermo- and mechano-therapeutics, factors of treatment which are presented as having great importance in cases of fracture in civil life. The last two chapters are devoted to the consideration of the education of movements and the restriction of gait to the lame and crippled. The arrangement of the work briefly is as follows: First appears the general considerations of the condition of reduction of fractures and of massage, "mobilization," electro-therapeutics, etc., with a chapter by Fr. Guermonprez on the history of massage. Also, "mobilization" is discussed and the place that massage occupies in the treatment of recent and of old fractures. Next, these principles are considered in the treatment of special fractures of the bones of the upper extremity, each bone and joint being discussed separately. How massage acts and the contra-indications for its use are the subjects of two chapters. Joint changes occurring in joints adjacent to fractured bones, conditions termed arthropathies are next treated and their anatomical character and symptomatology presented. The remainder of the work is devoted to application of the methods of mobilization, — retention apparatus, mobilization *versus* immobilization in the treatment of fractures of the forearm, wrist and knee, the care of fractures during convalescence, including mechano-therapeutics and the use of gymnastics.

The volume is an exhaustive treatise and presents at length that part of the treatment of fractures which is often summarized in the casual surgical textbook. It is a part of the treatment very important to the patient since it influences the time required for complete restoration of function, *i.e.*, motion. It, therefore, justly merits careful study and consideration.

A Textbook of Human Physiology. By ROBERT TIGERSTEDT. Translated from the German and edited by JOHN R. MURLIN. 751 pages. New York and London: D. Appleton & Co. 1906.

Professor Tigerstedt's admirable textbook of Physiology, since its first publication in 1897 the standard textbook of German medical students, has in this translation been made available to English-speaking students as well. The thorough acquaintance of the author with two great divisions of physiology, the circulation and metabolism, in which he has conducted important research, leads one to expect an excellent treatment of these subjects. But the scholarliness seen in these parts of the book is to be seen also in all other parts. Statements are based throughout on reports of the original investigators, and the summary of the literature includes the most recent discoveries of the science.

One unusual feature of the book deserving commendation is the part devoted to general physiology, the vital phenomena of cells.

Another excellent new feature is the occasional paragraph or section devoted to the consideration of the inter-relation of the activities of different organs — the organism as an integer is not lost sight of in the consideration of the separate systems and their special functions. The book is very well illustrated.

Large full-face types make clear the titles of the larger sub-divisions of each chapter, and italics are used for emphasis, and for indicating the key-word, phrase, or clause of a paragraph. Such devices are specially valuable for easy reading and quick review.

This book can be very highly recommended to students, and to physicians who wish to renew their acquaintance with physiology.

A Textbook of Materia Medica, Therapeutics and Pharmacology. By GEORGE F. BUTLER, Ph.G., M.D., Associate Professor of Therapeutics in the College of Physicians and Surgeons, Chicago. Fifth edition, thoroughly revised by SMITH ELY JELLIFFE, M.D., Ph.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in Columbia University, College of Physicians and Surgeons, New York. Octavo of 694 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1906.

The fifth edition of Butler's textbook has been entirely remodeled, rewritten and reset. The general arrangement of the book is changed so that drugs with predominant action on one system are grouped together. The use of a more compact type and the elimination of material from the chapter on Serum Therapy has reduced the size of the book. It is well written and carefully indexed and will prove of assistance to both student and practitioner. Dr. Jelliffe's name on the titlepage is a guaranty of faithful revision.

Diseases of the Stomach. A textbook for Practitioners and Students. By MAX EINHORN, M.D., Professor of Clinical Medicine at the New York Post-Graduate Medical School and Hospital; Visiting Physician to the German Hospital. Fourth revised edition. New York: William Wood & Co. 1906.

The present edition shows considerable revision, and there are comparatively few omissions of important facts. The volume would be greatly improved, however, by a more careful discussion

of dietetic treatment of the individual disease. The use of fats in hyperacidity should be emphasized, and the growing tendency to feed patients with gastric ulcer more freely should be considered, even if Lenhartz's views are not adopted.

Rhythmotherapy. A discussion of the Physiologic Basis and a Therapeutic Potency of Mechano-Vital Vibration, to which is added a Dictionary of Diseases with Suggestions as to the Technic or Vibratory Therapeutics. By SAMUEL S. WALLIAN, A.M., M.D., President American Medico-Pharmaceutical League. Illustrated. Pp. 210. Chicago: The Ouellette Press. 1906.

This volume attempts to place on a scientific basis the much vaunted recent treatment of various ills by vibration. It is doubtful whether all can be accomplished which is claimed, but exaggeration is to be expected in the exploiting of any single method of treatment. No doubt vibration has its uses, but they are somewhat sharply circumscribed as our increasing experience serves to demonstrate. The list of diseases, according to the writer, treatable by means of vibration is long and unreasonable. It is, for example, a waste of time to discuss the treatment of dementia or of diabetes mellitus or of epilepsy by this means.

Nature and Health. A Popular Treatise on the Hygiene of the Person and the Home. By EDWARD CURTIS, A.M., M.D., Emeritus Professor of Materia Medica and Therapeutics, Columbia University, New York. Pp. 313. New York: Henry Holt & Co. 1906.

Dr. Curtis has written this book, as he says, under the open sky, and it is offered to the public not as learning but as a lure to wiser living. It is, in fact, an attractive and somewhat popular presentation of hygiene in the broad sense of the term and should appeal to readers beyond the medical profession. In spite of the popular form in which it is written it is full of excellent common sense and many practical facts which we are inclined to think make a deeper impression upon the ordinary reader when presented in this way than when offered in the guise of pure science. We commend the book to our readers, both lay and professional.

Dissecting Manual Based on Cunningham's Anatomy. By W. H. ROCKWELL, Jr., M.D., Formerly Assistant Demonstrator of Anatomy in the College of Physicians and Surgeons, Columbia University, New York. Pp. 306. New York: William Wood & Co. 1905.

This is a manual intended for dissecting-room use and based on the classical work of Cunningham. The book is not illustrated, the author no doubt regarding the actual process of dissection as a sufficient substitute. The book makes no claims to originality and is, in fact, simply a description of structures which may be discovered by dissection. Like many other books of this character, it will, no doubt, be of more use in the laboratory where the writer was formerly active than in others.

The Treatment of Syphilis. By ALFRED FOURNIER, Professor at the Faculty of Medicine, Member of the Academy of Medicine, Physician to the St. Louis Hospital, Paris. English translation of the second edition, revised and enlarged. By C. F. MARSHALL, M.D., F.R.C.S., Late Assistant Surgeon to the Hospital for Diseases of the Skin, Blackfriars, London, etc. Pp. 528. London: Rebman, Limited. New York: Rebman Company. 1906.

Fournier has for many years been recognized as one of the leading syphilographers in the world, and much of his work has sifted into other languages through textbooks and by other such indirect means. Few, however, of his notable works on the general subject of syphilis have been translated into English. It is, therefore, a satisfaction to call attention to this volume in which the translation of Fournier's works on "The Treatment of Syphilis" and "The Prophylaxis of Syphilis" has been made by Dr. C. F. Marshall, of London. Although French is a somewhat widely read language, it is certainly true that any book in a foreign language is cut off from a large number of readers who might otherwise profit by it. In this instance it is peculiarly fortunate that at last a translation has appeared of one of Fournier's leading publications. The importance of the disease and the widespread interest from a social standpoint, as well as from a purely medical one, which it is arousing, makes the publication of this book in English peculiarly opportune.

The discussion of the treatment is extremely comprehensive and gives in detail the various methods which have from time to time been in use in administering the iodides and mercury. The chapters on the hypodermic method will, no doubt, be read with particular interest. The second part of this volume, on the prevention of syphilis, discusses more particularly the social side of the question and should find many readers among those who are conscientiously attempting to minimize a widespread danger to communities in all parts of the world. The book needs no further commendation than to say that it is a careful translation of an authoritative discussion of the subject.

Notes on Surgery for Nurses. By JOSEPH BELL, M.D., F.R.C.S. (Edin.), Consulting Surgeon to the Royal Infirmary, and to the Royal Edinburgh Hospital for Sick Children. Sixth edition, thoroughly revised. New York: William Wood & Co. 1906.

This is the sixth edition of this little book. It is an admirable presentation of the information that is adapted to a nurse's needs on the subjects of infection and repair, of fractures and dislocations, of tumors and of some special operations.

The lecture in the Appendix to the trained nurse and to the medical profession in its different subdivisions, and finally to the public, we wish might be read by every one.

THE BOSTON

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MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

During the past week some fifteen hundred members of the American Association for the Advancement of Science have been attending the fifty-seventh annual meeting of the society at Columbia University. At the first session, on Dec. 27, an address of welcome was made by President Nicholas Murray Butler, of Columbia, and in the evening the presidential address, on "Science in Education," was delivered by the retiring president of the Association, Dr. C. M. Woodward, of Washington University, St. Louis. Dr. William H. Welch, of Johns Hopkins University, is the president of the year. Under the auspices of the association, twenty of the leading scientific societies of the country held their meetings. On Dec. 28 an interesting series of papers was read before the American Society of Naturalists on "The Biological Significance and Control of Sex." Most of these dealt with plants and low forms of animal life, but Prof. T. H. Morgan, in his paper, discussed the question in relation to man, and expressed the positive conviction that up to the present time the scientific world was completely at sea in regard to what conditions control the sex of offspring. In the course of his remarks he said: "In recent years we find that one external factor above all others has been supposed to have an intimate relation to sex determination, namely, nutrition. An experiment of Landor's in 1867 furnished the first erroneous evidence in favor of this view. He claimed that he could produce at will males or females of the butterfly Vanessa by regulating the amount of food. Dusing applied the statistical method of study to the proportion of males and females in the human race, and also reached the conclusion that the nutrition of the parents is an important factor in sex determination. But his conclusions may be seriously questioned, because other statistics yield contradictory results, and because it is apparent that so many other external factors than food may be involved to account for the differences he noticed. Moreover, if nutrition were a factor in sex determination in man we should expect to find, I think, a far greater disproportion of males to females than Dusing's statements show. If further evidence is needed, it is furnished by the recent experiments of Cuenot with rats and of Schultze with mice. Even extreme conditions of starvation and of feeding produced no effects upon the birth-rate of males to females."

In the section on zoölogy, Prof. Burt G. Wilder, of Cornell, read a valuable paper on the brain of the shark. The brain of this fish, he said, was of special value for scientific study because it illustrates in an admirable manner the unity underlying the whole animal creation. More primitive species of the shark have survived than of any other animal, and while in some of them the brain has become very considerably developed, it is still possible to trace in the different varieties the complete evolution of the cerebral apparatus. Closely related to the shark is the dogfish, and in it can be demonstrated every part of the human brain. In this connection Dr. Wilder remarked that he looked forward to the time when no one would be esteemed a liberally educated man until he had dissected the brain of a dogfish. By this means he would have laid the foundation of an understanding of the brain of man.

Among the subjects of papers in the anthropological section were: "Heredity in Head Form," "Certain Aspects of Human Heredity," and "The Negro Brain." In the last-named paper Dr. Robert Bean stated that the difference between the white and black races in mental capacity could be absolutely determined by comparative measurement and weight of the brain of each. The Negro brain is decidedly smaller, while the nerves originating in it are much heavier than in the case of the white, in which respect it more closely resembles the brain of the white. The average weight of the brain of the American Negro is greater than that of other Negroes. This greater weight the speaker attributes to the presence of white blood, though one

of those who discussed the paper was inclined to believe that this was due to national circumstances.

One of the special features of the recent meeting of the Association for the Advancement of Science was the presentation to the American Museum of Natural History, on Saturday afternoon, Dec. 29, of ten marble busts of noted scientists and pioneers of science in America. These were admirable works of art, executed by the sculptor, William Cowper, and were the gift of Morris K. Jessup, president of the museum. The busts were those of Benjamin Franklin, Alexander von Humboldt, John James Audubon, John Torrey, Joseph Henry, Louis Agassiz, James Dwight Dana, Spencer F. Baird, Joseph Leidy and Edward Dunbar Cope. Prof. Henry Fairfield Osborne presided on this occasion. Dr. Herman C. Bumpus, director of the museum, presented the busts on behalf of Mr. Jessup, and the Hon. Joseph H. Choate accepted them on behalf of the truestes. As each of the busts was unveiled a short eulogistic address on the work of the distinguished original was made. Among those who were thus heard were the following: Dr. S. Weir Mitchell, of Philadelphia, spoke on Franklin; Dr. C. Hart Merriam, of Washington, on Audubon; Dr. Robert S. Woodward, of the Carnegie Institution, Washington, on Henry; President Arthur Hadley of Yale, on Dana; Dr. Hugh M. Smith, deputy United States Fish Commissioner, on Baird; Dr. Nathaniel L. Britton, director of the New York Botanical Garden, on Torrey, by whom the garden was founded; Dr. William Keith Brooks, of Johns Hopkins University, on Leidy; Professor Osborne, of the American Museum's Department of Paleontology, on Cope; and Prof. Addison E. Verrill, of Yale, an old pupil of his, on Agassiz. Letters from the Rev. Dr. Edward Everett Hale and Professor Putnam, of Harvard, were also read when the Agassiz bust was unveiled.

THE SCIENCE OF EDUCATION.

THE American Association for the Advancement of Science is coming to have a closer and closer relation to the medical profession, as a natural consequence of the position which medical science is taking in relation to other branches of learning. The somewhat recent establishment of a section in medicine is significant of this fact, and is but another indication of a general recognition that medicine, apart from its utility, has taken its place among the departments of abstract science.

In this connection the address of the president, Prof. Calvin M. Woodward, of Washington University, is of more than passing interest. Professor Woodward chose as his topic, "The Science of Education." He urged that another section be added to those already in existence, which should concern itself solely with education as a science. He is of the opinion that sufficient data and experience have been collected to formulate certain principles of universal applicability which may properly be regarded as a foundation for a new department of science. He was naturally speaking from the broad point of view, and was including in his remarks the vast range of subjects which come under the notice of this association. Nevertheless, the application of his ideas to certain matters which are attracting much attention in medical education is worthy of comment. For example, in one place he says:

"I agree heartily with Huxley and others that there is no valid distinction between pure science and applied science. The final test of the value of what is called science is its applicability, and it is one of the signal triumphs of the last few years that much of what was rated as 'pure science,' and 'pure' because useless, has proved to be invaluable either in widening the boundaries of scientific attainment or in the development of the useful arts."

For the past few years, since the development of the scientific method as applied to medical problems, medicine has been exposed to peculiar difficulties and misunderstandings. Medicine certainly is and must continue to be regarded as a utilitarian science, but it should not be supposed for this reason that purely abstract knowledge, as derived from laboratory study and experimentation, is therefore useless. Experience has again and again shown, as Professor Woodward suggests in the paragraph here quoted, that enormous benefits of a purely practical sort have come to medicine, as to other departments of knowledge, from wholly unexpected sources. There is no danger that the future will see a reversal of our friendly frame of mind toward abstract research in the medical sciences. The problem which will unquestionably come into prominence in the immediate future is rather the relation of the so-called practical branches of medicine to those which are followed primarily in the laboratories. The connection between so-called pure science and applied science is evident enough, but we are too apt to overlook the benefits which are likely to accrue to pure science, so-called, from the practical observations of every-day medical progress.

The time fortunately has passed when we may without expectation of correction speak of scientific medicine as opposed to, or at least contrasted with, clinical medicine. The time is coming, if it is not already here, when all the methods of so-called scientific research will be applied to the apparently commonplace phenomena of disease as manifested in the wards of our hospitals, and when that time fully comes, medical men may likewise say with Huxley that there is no valid distinction between pure science and applied science.

These somewhat commonplace observations regarding the present status of medicine Professor Woodward in an illuminating way applies to the whole range of education. The significance of his address lies essentially in the fact that he sees clearly the alliance of various types of training in the education of the future. Medicine undoubtedly may draw its special lesson from the general principles which Professor Woodward has skilfully and rationally evolved. It is, for example, eminently desirable that as soon as possible experimental methods in medical education give place to those which have stood the test of time and have not been found wanting. It is also desirable that our medical students should realize fully that whether their time be spent in the laboratory or in the hospital ward, precisely the same methods of education are applicable, and, finally, it should be impressed upon medical teachers, and through them upon medical students, that work in the laboratory has an immediate relation to the practical prosecution of their profession later. What we especially need at this time is that the clinical side of medicine be brought into connection with and influence the early laboratory training, and this, we maintain, is fully as great a necessity as that the abstract training in science should later find a place on the practical side of instruction. By the student of educational problems Professor Woodward's address may be read with much profit.

APPOINTMENT OF DR. SIMON F. COX AS SUPERINTENDENT OF BOSTON TUBERCULOSIS HOSPITAL.

The appointment of Dr. Simon F. Cox as superintendent of the tuberculosis hospital recently established in this city has been confirmed by the mayor. The appointment is a peculiarly fitting one from every point of view. Dr. Cox's experience, both as a physician and as an administrator, is of a high order. After graduating from the Harvard Medical School he served as house officer at the Long Island Hospital in Boston Harbor. At the time of the epidemic of smallpox in this city, some years ago, he had charge of the hospital at Gallup's Island. He then served in an official capacity in connection with the hospital on Deer Island, a position which he resigned to accept the place of assistant resident physician at the Long Island institution. He later became resident physician, and during the investigation of the institution which took place recently, showed a knowledge of the details of management which proved of the greatest value and did much toward establishing the falsity of the charges made. Until the appointment of Mr. English, the present superintendent of the institution, he served as acting superintendent with unusual capacity and tact. After the appointment of Mr. English he retained his position of physician and assistant superintendent for about a year, in the face of many difficulties, and finally resigned to accept the superintendency of the Albany, N. Y., hospital. He comes directly from this hospital to take charge of the Boston institution. The trustees and the city alike are to be congratulated upon having secured so competent a man to inaugurate the new undertaking in the treatment of tuberculosis.

A CYCLOPEDIA OF AMERICAN MEDICAL BIOGRAPHY.

Dr. Howard A. Kelly, of Baltimore, is preparing a cyclopedia of American medical biography to be issued in several volumes with illustrations, to include biographical notices of all the worthies who have passed away in this country and in Canada from the earliest times down to the present, including such living practitioners as have retired from active service.

It is the purpose to give in this ambitious work a full account of the lives, something of the personalities, of the medical or surgical activities and of the writings of all our leading men. Not only this, but the work plans to include brief sketches of the lives of men who have been very prominent in their own localities without, however, having been widely known as writers or original investigators.

The scope of this labor of love for the history of medicine is broader than anything heretofore published. During the two or three years necessary to accumulate the data, the cordial co-operation of the medical profession is solicited. Dr. Kelly asks that physicians and laymen having

lists of names, biographies, photographs or photographs of pictures of eminent medical men that they can spare communicate with him at 1418 Eutaw Place, Baltimore. The New England States, except Connecticut and Rhode Island, have been assigned to Dr. W. L. Burrage,

MEDICAL NOTES.

X-RAYS. — "Let your x-rays so shine that they may see your bad works." — "Cynic's Calendar of Revised Wisdom," 1907.

GIFT FOR CANCER RESEARCH. — A gift of $200,000 for cancer research in England is announced from Mr. and Mrs. Bischoffesheim. This money goes to the Imperial Cancer Research Fund in which King Edward has a particular interest.

ENGLISH A NECESSITY IN THE HAWAIIAN ISLANDS. — It is reported that the Hawaiian Medical Association has suggested legislation which will require applicants for licenses to practise medicine, to pass an examination in English. The Japanese have heretofore insisted that their examinations be conducted in Japanese.

THE MILITARY SURGEON: JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES. — The name of the journal of the Association for Military Surgeons is changed with the issue for January, 1907, to *The Military Surgeon*, retaining the old name as a subsidiary title. We call attention with pleasure to the successful career of this journal during the past six years, since, as the pioneer military medical journal in the English language, it entered upon a field hitherto unoccupied and unexplored. Its success in creating a reliable body of military medical literature has been, perhaps, not unexpected, although it has certainly been striking.

QUINCENTENARY OF THE UNIVERSITY OF TURIN. — The University of Turin should have celebrated the five hundredth anniversary of its foundation two years ago, but, owing to the disastrous fire which destroyed its magnificent library and wrecked part of the buildings, the ceremony was postponed. This was held on Oct. 27 last. The rector, Prof. Giampietro Chironi, delivered an address; Prof. Arturo Graf discoursed on the university of the future, and a tablet with a commemorative inscription in Latin by Prof. Ettore Stampini was unveiled. A collection of the most important documents relating to the history of the university, edited by Professors Stampini and Cipolla, has been published in honor of the occasion. — *British Medical Journal.*

THE WEBER-PARKES PRIZE AND MEDALS. ROYAL COLLEGE OF PHYSICIANS. — The next award under this foundation will be made in 1909, and the adjudicators have selected as the subject of the essay for that occasion: "The value of bacterial products in protecting against or in curing tuberculous diseases, with special reference to pulmonary tuberculosis in man." All essays, together with any preparations made in illustration of them, must be transmitted to the registrar of the Royal College of Physicians, London, during the last week of May, 1909, in accordance with the regulations relating thereto, copies of which will be forwarded from the college on application. The award will be made at some time previous to the 18th of October in that year, on which day the prize and medals will be presented to the winners.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Dec. 26, 1906, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 37, typhoid fever 12, measles 12, tuberculosis 22, smallpox 0.

The death-rate of the reported deaths for the week ending Dec. 26, 1906, was 18.70.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, Dec. 29, 1906, was 219, against 213 the corresponding week of last year, showing an increase of 6 deaths and making the death-rate for the week 18.96. Of this number 119 were males and 100 were females; 213 were white and 6 colored; 132 were born in the United States, 85 in foreign countries and 2 unknown; 47 were of American parentage, 148 of foreign parentage and 24 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 50 cases and 5 deaths; scarlatina, 38 cases and 1 death; typhoid fever, 9 cases and 0 deaths; measles, 8 cases and 0 deaths; tuberculosis, 34 cases and 22 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 39, whooping cough 0, heart disease 24, bronchitis 6 and marasmus 1. There were 12 deaths from violent causes. The number of children who died under one year was 32; the number under five years 46. The number of persons who died

over sixty years of age was 55. The deaths in public institutions were 58.

There were 4 cases and 3 deaths reported from cerebrospinal meningitis during the week.

Appointment of Dr. George A. Stickney. — Dr. George A. Stickney, of Beverly, Mass., has been appointed by Governor Guild medical examiner of the seventh Essex district. Dr. Charles W. Haddock, who formerly held this position, has resigned. Dr. Stickney brings the experience which he had as associate medical examiner to his new office.

Gift to the Lawrence, Mass., Hospital. — As the result of a decision by Justice Morton of the Supreme Court, the Lawrence City Hospital received $25,000 under the will of the late Helen G. Coburn, of Boston. A question as to the disposition of the money arose from the fact that the name of the hospital was incorrectly stated in the will; it appeared, however, on investigation that there was no doubt which institution was intended to be the beneficiary.

Lectures by Dr. Wilfred T. Grenfell. — Dr. Wilfred T. Grenfell, who has charge of the mission along the coast of Labrador, is now in Boston and is giving a number of lectures and talks relative to his work among the fishermen of that region. He has already spoken at Trinity Church, and is expected also to be heard at the Twentieth Century Club as well as at various churches, both in the city and in the suburbs. His work among the deep sea fishermen commends itself, not only on account of its religious aspect, but also as a medical work of much import.

Hydrotherapeutic Department at the Massachusetts General Hospital. — A new hydrotherapeutic room in the out-patient department of the Massachusetts General Hospital was opened Jan. 1. The primary purpose of this room is to provide treatment by hydrotherapeutic measures for the patients of the hospital, and secondarily to advance the knowledge of physical therapeutics which is coming to assume an important place in general treatment. Dr. J. H. Pratt and Dr. M. Böhm will act as medical advisers in the hydrotherapeutic treatment, and Dr. Pratt will give lectures twice a week through January and February on the general subject for the staff of the hospital. It is not to be questioned that this new department will find an ample field of usefulness.

The Muzzling of Dogs. — Dr. Austin Peters, chief of the Massachusetts cattle bureau, is reported as being in favor of the general muzzling or quarantine of all dogs in this state. The difficulties in accomplishing this lie in the belief which some persons apparently have that rabies as a disease does not exist and who would oppose either the muzzling or confining of their dogs. Certain animal lovers likewise take the position that such restraint is a cruelty and opposition may be expected from them. It is, therefore, a difficult matter to enforce a serviceable quarantine in this state. If it could be done, however, there is every probability that the disease could be stamped out.

NEW YORK.

Bequests. — By the will of the late John Harsen Rhoades, of New York, $10,000 is bequeathed to the New York Eye and Ear Infirmary and $5,000 to the Northern Dispensary.

Lecture by Dr. Grenfell. — The first public lecture of the season before the New York Academy of Medicine was delivered by Dr. Wilfred T. Grenfell, on "The Work of a Labrador Doctor." The lecture was illustrated by numerous lantern slides.

Classification of Radium under the Dingley Tariff. — The classification of radium under the Dingley tariff has proved a source of considerable perplexity to the local customs officers. The present tariff law, enacted in 1897, makes no specific mention of this article, as it was unknown at that time. The general appraisers having finally concluded that radium was a chemical salt, and dutiable at 25% *ad valorem*, a protest was made by the importing firm of H. Lieber & Co., who claimed that radium is a crude mineral and, as such, entitled to free entry. This protest has now been overruled. General Appraiser Lunt wrote the opinion of the board, after consulting many authorities, and in the decision it is stated that "the merchandise is radium bromide, which we find to be a chemical salt, and correctly assessed as such."

Dedication of the De Witt Clinton High School. — The De Witt Clinton High School, on Tenth Avenue, Fifty-eighth and Fifty-ninth streets, opposite Roosevelt Hospital, was formally dedicated on Dec. 18, the principal address on the occasion being made by President Nicholas Murray Butler of Columbia University. This is said to be probably the most finely equipped public school building devoted to secondary education in the country, and it represents an expenditure of $1,500,000. Among its features are

over one hundred recitation rooms, ten physics laboratories, two chemical laboratories, an auditorium seating 2,000, two lecture rooms, a music room, a library, a luncheon room capable of seating 800 boys, and two gymnasiums. The equipment of the laboratories is scarcely second to that found in the best scientific schools. Of the two gymnasiums, one is a large one for general work, with all the usual apparatus and an excellent running track, while shower baths and individual lockers give the pupils all the advantages of a private gymnasium. The other gymnasium, smaller in size and special in character, is designed for abnormal cases and boys lacking in physical vigor.

BEQUEST TO ST. LUKE'S HOSPITAL. — By the will of Mrs. Anna P. Burgess, of New York, $5,000 is left to St. Luke's Hospital, to establish and furnish a room to be known as the Anna Shippen Young Bogart Memorial, and $10,000 each to Columbia University and Barnard College for the establishment of four scholarships. The two Columbia scholarships are to be known as the Dr. Daniel M. Burgess and the Anna P. Burgess Scholarships. On the death of her husband, Dr. D. M. Burgess, the entire residuary estate, which is said to be a large one, is to be divided in equal parts between Columbia University and Barnard and Hamilton Colleges.

Obituary.

HENRY, W. DUDLEY, M.D.

DR. HENRY W. DUDLEY, one of the oldest and best known physicians in eastern Massachusetts, died of heart disease at his home in Abington, Mass., Dec. 30, aged seventy-five. Dr. Dudley was able to attend to professional duties up to the day before his death. He was a graduate of the Harvard Medical School in 1864, a member of the Massachusetts Medical Society and of the Massachusetts Medico-Legal Society. He had been a professor of pathology and lecturer on legal medicine at the Tufts Medical School, and also a medical examiner. He was an excellent practitioner and much respected in his neighborhood.

Current Literature.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES. DECEMBER, 1906.

1. *HARRINGTON, C. *Infantile Mortality and Its Principal Cause — Dirty Milk.*
2. *THOMPSON, W. G. *A Clinical Study of Eighty Cases of Exophthalmic Goitre.*
3. DEAVER, J. B. *A Year's Experience in Intestinal Surgery.*
4. *SEARS, G. G. *Accidents Following Thoracentesis.*
5. *NATHAN, W. P. *The Differential Diagnosis of the Diseases Hitherto Grouped Together as Rheumatoid Arthritis, Etc.*
6. HERRICK, J. B. *Exophthalmos in Leukemia.*
7. *MCCRAE, T. *Typhoid and Paratyphoid Spondylitis.*
8. *SONDERN, F. E. *The Value of the Differential Leukocyte Count in Diagnosis.*
9. *BROWN, S. *The Early Diagnostic Signs of Insular Sclerosis.*
10. *PREBLE, R. B. *The Principles of Treatment of Renal Insufficiency.*
11. *POTTENGER, F. M. *The Treatment of Tuberculous Laryngitis with Culture Products.*

1. Harrington, from statistics reported in America and in Europe, finds that the infantile death-rate of the communities studied varies roughly from 100 to 300 per 1,000 births. Diarrheal diseases are by far the largest single cause of this mortality, causing 20 to 80% of the deaths. The diarrheal death-rate varies widely according to season, being much higher in the months of July and August than in other months, whereas deaths from other causes are fairly constant throughout the year. The infants that died of diarrheas were in 90% of the cases bottle fed. These deaths occur mainly among the poorer classes and especially where female labor prevails. The handling and care of milk, in dairies, during transportation, and in distribution is almost everywhere done with insufficient precautions. Bacteria enter with dirt, and in the hot months, as the milk stands without proper cooling, multiply so enormously that a city's milk supply is often richer in bacteria than its sewage. These bacteria are of numerous kinds. Some are harmless; some only cause souring and coagulation; some produce poisonous products. Pasteurization destroys many bacteria, but some of the dangerous forms are spore-bearing and survive. One of the commonest and most numerous organisms is the streptococcus. To diminish infantile mortality, first of all, breast feeding should be insisted upon wherever possible. To this end the industrial employment of married women should be discouraged. Secondly, the public should be educated to demand clean milk, and to pay a fair price for it. The increase in cost of milk to poor families would be slight beside the present undertakers' bills. The middleman's profit should be regulated, and the producer given enough for his milk to enable him to keep ice and use proper precautions. It should be possible to reduce the infant mortality by 40%.

2. Thompson mentions, in addition to the well-known symptoms of Graves's disease, three facts which demand emphasis: (1) the frequency of acute febrile exacerbations with dilatation of the heart; (2) the very common association of these attacks with tonsillitis; (3) the possibility of mistaking such acute attacks with fever for malignant endocarditis or other forms of acute general septicemia. He reports one severe case which was promptly relieved and finally completely cured by the Rogers-Beebe serum. The symptoms of the disease noted in the series of eighty cases are described according to the frequency of their occurrence.

4. Sears describes the accidents following thoracentesis, especially pneumothorax, and sudden death of unknown cause. Of the latter he reports one case; there are ten reported cases in literature. Pneumothorax occurs more commonly and is, as a rule, not fatal. Sears adds four cases to the fifty previously reported. He mentions the appearance of albuminous expectoration recently discussed by Riesman; also the condition of subcutaneous emphysema, reporting one case. To avoid these accidents slow evacuation of small amounts at a time is advised.

5. Nathan divides diseases hitherto grouped under the name of rheumatoid arthritis into two classes: (1) those which begin acutely, the inflammatory or infectious forms; and (2) those of insidious onset, the trophic forms. Of the first class he describes four types of cases: (1) mild cases, which, however, may lead to some permanent disability; (2) similar cases with more fever and more severe joint symptoms, some with glandular enlargement, described as Still's disease; (3) cases simulating rheumatism, with high fever and often endocardial and renal complications, leaving permanent joint disability; and (4) cases associated with other infectious diseases, such as

typhoid and gonorrhea. Cases of the third and fourth types in their later stages show one of two forms of lesion, either thickening of the capsule and soft parts, or changes in the bones with tendency to spur formation or ankylosis. Of the second main class of diseases, the trophic forms, of insidious onset, three types are distinguished: (1) the gradually progressive cases occurring at any age, usually beginning in peripheral joints and finally involving every joint in the body, producing either synovial or osseous change; (2) senile osteo-arthritis, often monarticular, slower in progress, never showing marked bone absorption but characterized by pseudohypertrophy with lipping, showing as Heberden's nodes in the fingers; (3) the trophic osteo-arthritis of organic nervous disease, as in tabes dorsalis.

7. McCrae reports a case of typhoid fever and a case of paratyphoid, both followed by spondylitis in which the radiograph showed definite bony changes in the vertebræ. No previously reported cases have shown bone lesions demonstrable in this way. McCrae believes, however, from the symptoms, that some organic change in the spine is usually present in typhoid spondylitis.

8. Sondern believes that increase in the relative number of polynuclear cells in the blood is an indication of the severity of the toxic absorption, and that the degree of leukocytosis is an evidence of the body resistance toward the infection. He maintains from a study of eight thousand cases that purulent exudates are rarely if ever present with low polynuclear percentages, irrespective of the height of the leukocyte count; while very high polynuclear percentages almost invariably indicate the presence of purulent exudates, even if the total leukocyte count is low.

9. Brown calls attention to the fact that the cardinal symptoms, as usually taught, of insular sclerosis — intention tremor, nystagmus, optic atrophy and scanning speech — are commonly present only in the late stages of the disease, and only in a small minority of all cases. He quotes a tabulation by MacIntosh of Aberdeen, of the earliest symptoms noted in a series of 80 cases. Of these, motor paresis occurred first in 45 cases, disturbances of sensation in 29, ataxia or tremor in 20, sphincter troubles in 5, apoplectiform attack in 3, and various cerebral symptoms, such as amblyopia (12), vertigo (4) and nystagmus (2) in 19. Four cases are reported.

10. Preble considers mainly the renal insufficiency which leads to uremia. The deficient excretion in heart disease is to be treated by rest with digitalis and limitation of chlorides; in that of fevers, large amounts of water are to be given. In uremia, however, it is believed that certain unknown substances which should be excreted by the kidneys have accumulated in the body. To limit their production a diet of milk, cream and cereals is advised. Gastro-intestinal fermentation is to be reduced by drugs not irritant to the kidneys. Purgation by vegetable cathartics aids in this and also accomplishes something in excretion. Sweating merely causes removal of water. Much more efficient are venesection and withdrawal of fluids from thorax and abdomen.

11. Pottenger quotes numerous authors, most of whom regard the prognosis of tuberculous laryngitis as absolutely bad. Lake, however, reports 20% of cures and von Ruck 82% of 426 cases. Pottenger has treated 15 cases (all at first showing tubercle bacilli in the sputum) with von Ruck's watery extract of tubercle bacilli, and reports apparently complete cures in 11 cases or 73%.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
DEC. 15, 1906.

1. MITCHELL, S. W. *Sudden Paralysis of Pharynx. Artificial Feeding for Four Years.*
2. *RIGGS, E. E. *Myasthenia Gravis.*
3. LLOYD, J. H. *Faradization of the Motor Cortex in the Human Brain.*
4. JOHNSON, F. M. *Addenda to Therapeutic Measures in Nephritis.*
5. MCDONALD, E. *Mensuration of the Child in the Uterus.*
6. ROCHESTER, D. L. *The Treatment of Asthma.*
7. FULLERTON, E. B. *The Quinin Treatment of Cholera.*
8. WILBERT, M. I. *Revision of the United States Pharmacopeia.*
9. *BREM, W. V. *Malarial Hemoglobinuria.* (Concluded.)
10. NOBLE, C. P. *Fibroid Tumors of the Uterus.* (Continued.)
11. WIGGIN, F. H. *Case of Multiple Fibrosarcoma of the Tongue.*

2. Three cases of this comparatively rare affection are reported by Riggs, illustrating the bulbar and the ophthalmoplegic types of the disease. Although there were antecedent pathologic conditions in two of the cases, Riggs considers the etiology of the disorder as still unknown. In two of his cases there was externalo phthalmoplegia, and the "nasal smile," noted by Gowers, was marked in all three. The myasthenic reaction — the tetanizing of the muscle by faradism — was present in all three cases, and while not pathognomonic, its occurrence is significant and valuable for diagnosis. The greatest danger in diagnosis is that of mistaking the condition for hysteria, especially if the color reversal and other symptoms of hysteria are present, as in a case reported by Burr. Riggs thinks that the condition is best explained by assuming a a toxin in the blood affecting the lower motor neuron, and refers to Taylor's suggestion, based on a not infrequent pathologic finding, that this toxin is due to a diseased thymus or to an abnormal lymphoid tissue infiltration throughout the body and muscles. Treatment has been usually ineffective. He found the most efficient agents to be strychnia, gentle massage and galvanism.

9. Fourteen cases of malarial hemoglobinuria, occurring in the Canal Zone, are reported and discussed in detail by Brem. The general results of the study of these cases are summarized, in substance, as follows: (1) A febrile affection resembling the estivo-autumnal type of malarial fever was the only etiologic factor discoverable. Previous attacks of malaria seemed to furnish a favorable ground. Quinin was not an etiologic factor, either predisposing or exciting. The evidence favors the estivo-autumnal parasite and not a special organism as the cause. (2) The symptoms and signs may be very mild and the grave condition be revealed only by the urinary examination. A history of dark or bloody urine can almost invariably be obtained. (3) The degree of fever bears no relation to the hemoglobinuria or albuminuria. A posthemoglobinuric fever of a peculiar type occurred in four cases; it did not yield to quinin. (4) Blood examinations show that the primary event is destruction of the red blood corpuscles, with hemoglobinemia and subsequent hemoglobinuria. Anemia is exceedingly rapid, as is likewise recovery. (5) In well-defined cases an absolute diagnosis can be made by macroscopic examination of the urine, combined with the test for albumen. In border-line cases the hemoglobin test is necessary for an absolute diagnosis, but a probable diagnosis can be made from a brownish urine with 20% albumen (by volume!) or more. (6) The mortality was 2 in 14 cases (14.3%). (7) A correct prognosis in individual cases is very difficult. (8) Intramuscular injections of quinin seem to act specifically. The best method is thought to be the injection of 10 gr. every four hours for the first forty-eight hours (15 gr. may be given for the first three or four doses), and then smaller doses may be given by the mouth unless vomiting prevents. Quinin bihydrochlorid in an excess of acid is more suitable than quinin bimuriate with urea for intramuscular injection. The article is illustrated by a number of charts showing conditions in different cases of the disease.

THE LANCET.
DEC. 8, 1906.

1. MAKINS, G. H. *Clinical Lecture on a Case of Lingual Goitre.*
2. *MCGARRISON, R. *Further Observations on Endemic Goitre.*
3. GLAISTER, J. *Water Gas, Carburetted Water Gas and Carbon Monoxide Poisoning.*
4. LATHAM, P. W. *On a New Synthesis of Tyrosin.*
5. DOBSON, MARGARET B. *A Case of Epileptic Idiocy Associated with Tuberose Sclerosis of the Brain.*
6. CAHILL, J., BENNETT, W. H. *A Case in which Acute Appendicitis and a Twisted Ovarian Pedicle Existed at the Same Time.*
7. WATSON, D. C. *The Influence of an Excessive Meat Diet on the Osseous System.*

2. McGarrison believes that goitre is an infectious disease and that water is the chief but not the only vehicle of infection. His conclusions are based on observations carried on in Gilgit, Kashmir. Goitre exhibits a distinct "seasonal prevalence." The large number of new cases he sees develop early in the spring. Grief, mental or physical depression may be the exciting cause of the disease, as well as puberty, childbirth and the menopause. In this region all races except the white are susceptible to the disease, although the higher classes are much less frequently affected. Animals are not affected; in a village where 45% of the inhabitants were goitrous, no animal showed any sign of the disease. As far as water is concerned it cannot be from any dissolved ingredient that the disease arises; it is some extraneous matter in suspension. Many soldiers lose their goitres while off on leave of absence and on their return as regularly are again affected. The fact that as long as men live in an infected site no amount of care as to boiling the water will prevent them from having goitres, shows that water is not the only infective agent. Close contact with damp soil is a strong predisposing factor. Blood examination, except for a moderate eosinophilia, was negative; examination of feces has as yet given no definite results, but the administration of intestinal antiseptics, particularly thymol, was markedly beneficial. The writer believes goitre to be due to an infection from the intestinal tract.

British Medical Journal.
Dec. 8, 1906.

1. *Gowers, W. R. *The Borderland of Epilepsy: Migraine.*
2. *Semon, F. *Remarks on the Therapeutic Value of Complete Vocal Rest during the Sanatorium Treatment of Laryngeal Tuberculosis.*
3. *Marsh, H. *Present Views on Diseases of the Joints.*
4. Bennett, W. *On Sprains and Their Consequences Mainly in Relation to Treatment.*
5. Clements, C. *Errors of Vision as a Factor in Motor Car Accidents.*

1. The term migraine is now used for all forms of paroxysmal headache, not for the unilateral "hemicrania" as it was originally intended. It is closely connected with epilepsy; one may alternate with the other, instances often occurring where epilepsy sets in as migraine ceases. The most characteristic premonitory symptom of migraine is visual; this lasts fifteen to thirty minutes and is not to be confused with the aura preceding epilepsy; there may be vertigo and other sensory disturbances before an attack. Gowers cites several cases showing how migraine has gradually given place to true epilepsy, but emphasizes the fact that though there is a connection between the two diseases, they are nevertheless usually very distinct clinically, having a different course and requiring different treatment.

2. Semon advises complete vocal rest in all cases of laryngeal tuberculosis; he thinks that without this sanatorium and hygienic treatment are of little avail and local treatment is greatly aided by this procedure. He describes seven cases where the silence-cure has been markedly beneficial,

3. Marsh classifies diseases of joints as follows: (1) Those familiar cases easy of diagnosis and treatment following wounds, or in the course of acute infectious diseases, such as osteomyelitis or pyemia. (2) Those met with in specific fevers — acute rheumatism, scarlet fever, typhoid, influenza, dysentery, etc. These are usually simple and get well of themselves. (3) A group, common, but important because easily overlooked, where joint disease is due to infection from strepto- or staphylo- or gonococcus, but in which the symptoms are widely different from those usually connected with these several infections. He dwells particularly on this last class. He describes joint disease occurring in chronic gleet which resembles tuberculosis more than anything else; also cases where the source of infection was from carious teeth, with complete disappearance of symptoms on their removal. Chronic bronchiectasis may be the source of infection, or a septic condition of the uterus. The treatment consists in the removal of the source of infection, and in local measures.

The Practitioner.
December, 1906.

1. White, W. H. *Cancer of the Stomach.*
2. Cheatle, G. L. *The Distribution and Treatment of Cancer at the Angle of the Mouth.*
3. *Chaplin, A. *The Treatment of Bronchiectasis.*
4. Bainbridge, F. A. *Urinary Excretion in Bright's Disease.*
5. Emery, W. E. *Serum-Therapy.*
6. *Fagge, C. H. *Intussusception in Infants.*
7. Bennett, A. G. *Physical Methods of Treating Heart Disease.*
8. Ker, C. B. *Recent Work on Typhoid Fever.*
9. Nash, J. T. C. *A Contribution to the Etiology of Typhoid Fever.*
10. Sheill, S. *The Immediate Suture of Ruptured Perineum. A Criticism.*
11. Upcott, H. *The Diagnosis and Treatment of Renal Colic.*

3. Chaplin classifies bronchiectasis into two types, the chronic and the more acute type. The first is never a primary disease but follows some other non-resolving inflammation of the lungs; it is also a progressive type finally resulting in a mass of dilated tubes and fibroid tissue, Corrigan's cirrhosis. Sixty per cent of the writer's cases followed some acute lung inflammation of childhood, while the disease is usually met with during early life, under twenty-five years. The "more acute" type is only relatively acute. It is met with later in life and there is no long period between the attack from which it starts and the establishment of the bronchiectasis; from the first the symptoms are constitutional, and grave and metastatic phenomena, such as abscess of the brain, are liable to occur. Fetid sputum means cavity formation and retention of sputum within these cavities The aim of treatment should be preventive — to prevent the accumulation of sputum in lifeless and non-resilient tubes and to render the contents of these tubes aseptic. Three methods are employed to empty cavities: (1) posture; (2) drugs; (3) surgery. (1) The foot of the bed should be raised six inches and the patient should lean over the edge of the bed every morning and while in that position try to expel the sputum. As to drugs, emetics and stimulating expectorants are of but little avail. Inhalations of thymol and eucalyptus are not of much lasting benefit. The writer for eleven years has used inhalations of creosote vapor with remarkably good results. The conditions are trying and too often the treatment is given up without a fair trial. The patient sits in a small room in which a pan of 6 oz. of creosote is vaporized with an alcohol lamp, bi-weekly, for one half to one hour over a period of six weeks to three months. This method not only removes the fetor when present but also prevents its formation. No untoward results have been recorded where the eyes were well protected and the nostrils plugged.

6. Intussusception usually occurs in strong fat babies under one year, of whom the majority have been breast fed and without a history of frequent attacks of enteritis. The fact that the disease is so common in infants and rare in adults is as yet unexplained; it is probably due to some anatomical peculiarity. The sudden onset of the symptoms is characteristic; diarrhea and the passing of blood is a late sign. A few hours after the intussusception the aspect of the child is distinctly "abdominal." A tumor is often present; rectal examination is very important, especially if done under an anesthetic. Inflation, the writer believes, is rarely of value and should only be tried when the laparotomy is necessarily delayed. Out of 19 cases operated on by the writer, 15 recovered from the operation and were discharged well. Of the 4 cases that died, 2 had irreducible conditions, where an excision was necessary.

Surgery, Gynecology and Obstetrics.
December, 1906.

1. *Bloodgood, J. C. *Senile Parenchymatous Hypertrophy of the Female Breast; Its Relation to Cyst Formation and Carcinoma.*

2. *Mayo, C. H. *Peripheral Versus Intracranial Operations for Tic Doulourеux.*
3. *Senn, N. *Tendon Tissue Versus Catgut Ligatures.*
4. *Hollister, J. C. *Vaccine Therapy and Passive Hyperemia in Surgery.*
5. Lewis, H. F. *The Bloodless Methods of Artificial Dilatation of the Cervix Uteri at Full Term.*
6. Holmes, R. W. *Bloody Methods of Rapid Dilatation.*
7. *Magan, A. *A Review of Over Fourteen Thousand Surgical Anesthesias.*
8. Leischner, H. *The Plastic Surgery of the Eyelids by the Use of Pedunculated Doubled Skin Flaps.*

1. Senile parenchymatous hypertrophy of the breast is most frequently seen in women between forty and fifty, the usual period of the climacteric. The pathological process is chiefly one of epithelial activity, therefore parenchymatous, and it resembles the pathological process — hypertrophy — much more than an inflammation or a neoplasm. It may be considered a pathological hypertrophy, like diffuse hypertrophy of the virginal breast, and not a physiological process like lactation hypertrophy. Bloodgood emphasizes the important fact that the process has both a benign and a malignant stage. There are found two types: (1) the *cystic* in which in one or both breasts one or more smooth-walled cysts are present. In this type carcinoma is rarely observed and excision of the cyst wall suffices. (2) In the second form, the *adenocystic* type, large cysts are never present. The disease consists of a localized enlargement of part of one or both breasts due to a parenchymatous hypertrophy. In this form carcinoma is so frequent that Bloodgood advises removal of the entire breast in every instance.

2. Mayo reviews the various methods of operating for trifacial neuralgia and reports good results following closure of the various foramina by means of a silver screw.

3. Senn advises the use of tendon from the narwhal, walrus and whale, on account of its superior tensile strength and ease of sterilization.

4. Hollister contributes an admirable article, fully illustrated, on the method of determining the opsonic index and its use in the treatment of infections. The article should be consulted in the original by those interested in the subject.

7. From her very extended experience in anesthesia Miss Magan advises ether by the open drop method without the preliminary use of any other drug, such as nitrous oxide, or chloroform mixtures. The ether is started on the operating table at the same time as the aseptic preparation of the patient. It is her opinion that nurses are best fitted for the administration of an anesthetic. "To give an anesthetic properly is all one person can do, and he who undertakes to learn surgery at the same time makes a serious mistake."

Deutsche Medizinische Wochenschrift, No. 49. Dec. 6, 1906.

1. Ehrmann, S. *The Treatment of Acute and Chronic Cystitis.*
2. *Weber, A. *The Infection of Man with the Bovine Tubercle Bacillus.*
3. *Vannod, T. *Agglutinins and Specific Immune Bodies in Gonococcus Serum.*
4. *Bab, H. *Remarks on the Article of Wassermann and Plaut on Syphilitic Anti-bodies in the Cerebrospinal Fluid of Paretics.*
5. Friedberger, E., and Moreschi, C. *Active Immunization against Typhoid Fever.*
6. Saalfeld, E. *The Internal Treatment of Gonorrhea.*
7. Hess, O. *Eventration of the Diaphragm.*
8. Heinzelmann. *A Case of Lymphangioma of the Omentum.*

2. Weber reports some interesting and important observations on tuberculosis from the Berlin Board of Health (*Gesundheitsamt*). In 20 cases the bovine variety of the tubercle bacillus was found, 15 times in the mesenteric glands, 5 times in the cervical glands. The bovine type of infection is found almost exclusively among children, and is usually a primary infection of the intestine or mesenteric glands, never giving rise to the anatomical picture of phthisis, and possessing a marked tendency towards spontaneous cure. Infection seldom occurs during the first year of life, during which the milk is usually boiled; 90% of the cases were in children under seven. No instances have been observed in which infection with the bovine variety was transmitted from one human being to another. Only a single case has been reported among adults. Weber concludes that the danger of infection of man with bovine tuberculosis is a real one, though insignificant compared with that from the human variety.

3. Vannod has obtained a gonococcus serum in rabbits, which is rich in immune bodies (amboceptors) and agglutinins. It also gave agglutination with the meningococcus, but not with so high dilutions, and gonococci were also agglutinated by a specific meningococcus serum. This "group agglutination" shows how closely the two organisms are related. Further experiments with Wassermann's method (*Komplementablenkung*) showed, however, that the gonococcus serum contained amboceptors for the gonococcus only, not for the meningococcus, and the same held good, *mutatis mutandis*, for the meningococcus serum.

4. Bab made histological examinations of the material used by Wassermann and Plaut in their experimental work reported in No. 44 of this journal (abstracted in Boston Medical and Surgical Journal, Nov. 29, 1906, p. 664), and found spirochetes present in the organs of syphilitic feti in every case, in which the above named authors demonstrated the presence of "antigen." In one infant spirochetes and antigen were absent in the liver, but a few of the former were found in the pancreas. These observations offer further confirmation of the etiological significance of the spirocheta pallida, in that syphilitic products and spirochetes were found always in association with one another.

Münchener Medizinische Wochenschrift, No. 49. Dec. 4, 1906.

1. *Cristiani and Kummer. *Functional Hypertrophy of the Transplanted Thyroid in Man.*
2. *Neubauer and Staübli. *Intestinal Diseases with Eosinophilia.*
3. *Moro, E. *Further Investigations Concerning a Precipitin for Cow's Milk in the Blood of Infants.*
4. *Bruck, A. W. *Tuberculosis in Infancy.*
5. *Conradi, H. *The Early Bacteriological Diagnosis of Typhoid Fever.*
6. *Lardelli. *The Influence of Arsenic in Metabolism.*
7. Paschen, E. *The Cause of Vaccinia.*
8. Wederhake. *Suture Material.* (Continued article.)
9. *Wassermann, A., and Bruck, C. *The Presence of Antituberculin in Tuberculous Tissue.*
10. *Lengfellner, K. *The Treatment of Anthrax.*
11. Sondermann, R. *Tamponing the Nose in Ozæna.*

1. Cristiani and Kummer, after alluding to their successful transplantations of thyroid tissues in man and animals, report a case in which such a bit of thyroid showed a marked hypertrophy three years after transplantation. The tissue was derived from a goitre excised from the same patient, and showed a return to the normal histological appearances when cut out for examination three years later. The authors consider this method a valuable one in the treatment of myxedema and in total extirpation of the thyroid.

2. In cases of acute gastro-enteritis, chronic intestinal catarrh, and proctitis, Neubauer and Staübli found in the stools either eosinophiles or their equivalent, Charcot-Leyden crystals. Eosinophilia of the blood was present in a few of them, in one case up to 15%, and a parasitic origin of the eosinophilia could be excluded. Many of the patients were of a nervous temperament, and the eosinophilia is regarded as analogous to that found in bronchial asthma.

3. A precipitin for cow's milk was found by Moro in the blood of 2 infants out of 22 examined. He was also able to demonstrate in a few instances the presence in the blood of the precipitable substance.

4. As shown by Bruck's case, tuberculosis of the lungs in

the infant may run a course without fever and without marked disturbances of nutrition.

5. It has been found that when the blood of a typhoid patient clots, all the bacilli which may be present are included within the clot. Conradi has taken advantage of this to make cultivations from the clot of specimens sent him for the Widal test, using his special culture medium consisting of 5 cc. ox-gall with 10% peptone and 10% glycerine. The clot from 1 to 4 drops of blood gave positive results in 50% of the cases in the first two weeks of the disease. In the case of a young girl he obtained positive cultures from the blood three weeks after she had returned to school. [Such improved methods of cultivating the typhoid bacillus from the blood are much more accurate than the Widal reaction, for they enable the diagnosis to be made in the first week, and yield positive results in those cases where the Widal reaction is absent throughout the course of the disease, owing to the lack of the formation of agglutinins.]

6. Lardelli's experiments on rabbits with Val Sinestra water, which contains arsenious acid, showed that arsenic in small doses given over a long period (four months) produces an increase in metabolism with a marked deposition of fat and also an increase in proteid. The increased fat is not due to a pathological process, for the arsenic animals were all more frisky than the controls, and showed more rapid growth of the bones. The effect on the blood was to cause a diminution of the number of leucocytes, while the red cells, which were already normal, showed no changes.

9. By means of their method (see Neisser: *Deutsch. Med. Woch.*, No. 48, abstracted in the BOSTON MEDICAL AND SURGICAL JOURNAL, Dec. 27, p. 789) Wassermann and Bruck have shown that both tuberculin and antituberculin are present in tuberculous tissues. They regard the existence of hypersusceptibility in these tissues, as shown by the tuberculin reaction, to be due to the fact that the antituberculin there present attracts the tuberculin out of the circulating blood, and enters into combination with it.

10. Lengfellner reports the results from conservative treatment of external anthrax, as practised in v. Bergmann's clinic, fifteen cases without a death. The primary pustule is left entirely undisturbed, a bandage is applied and the affected member is suspended.

Ischemic Muscular Paralysis and Contractions. This important condition, often known as Volkmann's paralysis, has been investigated by HILDEBRAND (*Volkmann's Vorträge*, November, 1906), both clinically and experimentally. The clinical picture is well marked and consists of a shrunken forearm with atrophic, tightly stretched skin. The flexor muscles are wasted and feel hard to the touch. The hand is immovable on the forearm in a slightly flexed position, while the first phalanges are extended and the distal two flexed. The hand and arm are cooler than normal, and on the bluish-red fingers are frequently found ulcerated spots. Disturbances of sensation are present of varying severity. This condition is caused by fracture either at the elbow-joint or in the middle of the forearm; rarely by dislocation. Of the cases collected by Hildebrand, in 35 the fracture was at the elbow-joint, in 18 near the mid-forearm, while in 1 the shaft of the radius and in 1 its styloid process were involved. In 3 cases trauma without fracture was found. The treatment had usually been by plaster cast, and the history showed that after its application there occurred marked pain, with blue fingers and the formation of blisters. After removal of the cast the arm and hand swelled markedly, then became cooler than normal, the arm gradually wasting with ensuing contractures. Examination of the muscles in the acute condition finds them pale and swollen, looking almost as if cooked. The nerves often have areas where their caliber is much reduced, and they do not shine but are of a grayish color with spots of red. Later the muscles are found much reduced in volume, hard, stiff, having lost much of their power of contractility and being of a yellowish brown color, bleeding but little on section. The cause of this condition is considered by Hildebrand to be a consequence of vessel injury at the time of the original accident. In all probability an artery is bruised or its interior lacerated by a bony spicule, with either total or partial occlusion of its lumen. Collateral circulation is prevented by the tight compression bandage used to hold the fracture in place. Thus the blood-supply to the muscles is so impeded that atrophy and its sequels follow. The nerve involvement can be due to injury at the time of the accident, but is more usually due to steady, long-continued compression by the swelling of the muscles during the acute stage. This view is upheld by the fact that disturbances of sensation, as a rule, first make their appearance several days after the injury.

It is not true that the condition is due wholly to too tight application of cast or splints, for a few cases have been found where this condition came on though no splints of any sort had been used. In these cases the pressure was caused by large extravasation of blood underneath the fascia. The previous experimental work on the question of muscle viability in general is reviewed, followed by the results of those made by Hildebrand, in which he was able to cause a similar paralysis in animals by ligation of the femoral artery and injuring the nerve, followed by a pressure bandage. In six days complete muscular atrophy with fatty degeneration had occurred. The treatment of the condition is not very satisfactory in many cases. Forcible stretching, vibratory massage and like measures have been employed. The cases from the literature, together with new ones added by Hildebrand, are reported in brief.

Miscellany.

SURGICAL TREATMENT OF GOITER BASED UPON 300 PERSONAL OBSERVATIONS.

DR. C. H. MAYO, of Rochester, Minn., read a paper before the Southern Surgical Association, Dec. 11, 1906, of which the following is a brief abstract from the author:

The medical profession of America is taking a progressive position in recommending operation as the cure for goiter, including, also, that serious affection, exophthalmic goiter. The simple goiters in girls at puberty are not included in this rule.

Excepting operations for malignancy and Graves's disease, the great majority of operations are those of expediency and not of necessity. Therefore, a low operative risk is imperative.

In uncomplicated cases, the mortality following operation is almost an accidental one. There were 110 cases of Graves's disease with nine deaths and but two of these were in the last 64 operations.

In 2 sarcomas and 6 carcinomas there was one operative death, which occurred on the third day. Aside from these recorded, there was one death from pneumonia on the eighth day.

Pathologically, there is a change in the gland which is essential to Graves's disease or hyperthyroidism. This is in the greater number, size and shape of the cells and in the lack of normal colloid.

Preparation. — Patients are prepared with reference to lung complications, and the rhythm and tension of the pulse, which should be carefully investigated, as they are the danger signals.

Anesthetic. — Very rarely is local anesthesia employed, the preference being for the open drop method of giving ether. The patients receive from 1-120 to 1-150 gr. of atropine and $\frac{1}{6}$ gr. of morphine twenty to thirty minutes before the giving of the anesthetic.

Operation. — The position of the patient is head up (reverse Trendelenberg) with a roll of gauze under the neck to elevate small tumors. A transverse collar incision is made through the skin and platysma muscles, the sterno-hyoid muscles separated in the mid-line.

In exophthalmic goiter and complicated cases, the anterior muscles on one side at least are severed as high as possible over the thyroid to preserve the nerve supply and break the scar effect.

Cysts and encapsulated growths are enucleated; other goiters are extirpated, care being exercised in preserving the parathyroids to prevent tetany and in protecting the recurrent laryngeal nerves. In this we are aided by leaving the posterior capsule of the gland in the extirpation. Sufficient gland substance should be preserved to prevent myxedema, and as it depends upon the character of the gland, no definite rule can be given as to what constitutes the proper amount.

MEMORIAL TO W. K. OTIS.

At the regular meeting of the Second Section of the American Urological Association, held in New York on Wednesday, Oct. 24, 1906, the president, Winfield Ayres, M.D., officially announced the death of the vice-president of the Second Section, William K. Otis, and called for a report by the committee appointed for the purpose to present a memorial on the association's bereavement. In presenting the report, a member of the committee said:

"The ties of life-long intimacy which bound most of us to Dr. Otis make his death a subject of grief to each individual. The usual set form of preamble and resolutions, therefore, were deemed inadequate by your committee to express our sorrow. 'Billy's' demise is, to the older members of the association, as if a much loved brother had gone from us. Your committee begs to submit:

"William Kelly Otis's earthly career ended on Sept. 22, 1906:

"To the members of the American Urological Association his death is a threefold blow.

"Most of us knew him intimately from his childhood; by his decease we lose a consistent friend, a charming companion, a most estimable colleague.

"To the science of urology his death means an irreparable loss. Cut off in the midst of his career, his inventive genius is stopped; the new and useful instruments he was continually devising must now be perfected by other hands. The advances in our work he can no longer aid in developing.

"The American Urological Association loses one of its founders, one of its most active coadjutors, one of its truest adherents.

"Our association shares with the family of William K. Otis, with the profession at large, and with that world in which true manhood is understood and appreciated, that deep grief which the death of so noble a character inspires.

Ramon Guiteras,
A. Ernest Gallant,
Ferd. C. Valentine,
Committee."

Follen Cabot, M.D., moved and G. K. Swinburne seconded that the report be accepted and the committee discharged. Carried.

Augustin H. Goelet, M.D., moved and George M. Muren, M.D., seconded that the introductory remarks with which the memorial was presented, together with the memorial, be spread upon the minutes, published in the medical journals, and a copy furnished the family of the deceased. Carried.

The president appointed Ferd. C. Valentine a committee with full powers to execute the behests of the above resolutions.

Correspondence.

THE CURATIVE ACTION OF ATOXYL IN THE TREATMENT OF TRYPANOSOMIASIS.

Liverpool School of Tropical Medicine,
Liverpool, Dec. 21, 1906.

Mr. Editor: Reports have of late been repeatedly published which ascribe to Dr. Koch the discovery of a drug, atoxyl, which has a curative action in the treatment of human trypanosomiasis. The London *Times* has copied an article to this effect from the Cologne *Gazette* and the London *Standard* has printed a similar article from its Berlin correspondent. These articles have been widely circulated and they lead the public to believe that Dr. Koch was the first to use this remedy in trypanosomiasis. It may be of interest to your readers to know that the beneficial action of atoxyl in experimental trypanosomiasis was discovered by the Liverpool School of Tropical Medicine and that its use has been steadily and publicly advocated by its staff for the past year and a half. The first work of Dr. Thomas on this use of atoxyl was received by the Royal Society in April, 1905, and was published in their proceedings in November of the same year. Dr. Thomas's next article was published in the *British Medical Journal* in May, 1905. An account of the experiments carried on by Thomas and Breinl in regard to the action of the drug in trypanosomiasis can be found in "Memoir XVI" of the Liverpool School of Tropical Medicine, 1905.

The use of atoxyl as a practical remedy in conjunction with the use of gland palpation and puncture as a diagnostic method was advocated by Todd in his official report (unpublished) to the government of the Congo Free State. These recommendations were adopted and are incorporated in the "*Mesures coordonnées concernant la maladie du sommeil*" drawn up by Dr. Van Campenhout for the use of medical and other officers of the Congo Free State.

The use of atoxyl in "sleeping sickness" was again recommended by members of the staff of the Liverpool School of Tropical Medicine in the following publications: Dutton and Todd, "Memoir XVIII," Liverpool School of Tropical Medicine, and Todd, *British Medical Journal*, May 5, 1906.

It will, therefore, be seen that the whole credit for the introduction of atoxyl in the treatment of trypanosomiasis belongs to the Liverpool School of Tropical Medicine.

Sincerely yours,
E. N. Tobey, A.M., M.D. (Harvard).

[This letter reached us through Dr. Harold C. Ernst, in whose laboratory at the Harvard Medical School the writer was formerly a worker. Dr. Tobey is now Research Fellow at the Liverpool School of Tropical Medicine. — Ed.]

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 22, 1906.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,381	365	Quincy	15	6
Chicago	618	195	Waltham	4	—
Philadelphia	—	—	Gloucester	6	2
St. Louis	—	—	Pittsfield	11	—
Baltimore	229	62	Brookline	4	3
Cleveland	—	—	North Adams	3	2
Buffalo	—	—	Chicopee	8	6
Pittsburg	—	—	Northampton	6	1
Cincinnati	—	—	Medford	8	1
Milwaukee	—	—	Beverly	7	—
Washington	—	—	Hyde Park	2	1
Providence	85	23	Newburyport	—	—
Boston	216	52	Leominster	3	—
Worcester	45	10	Melrose	5	0
Fall River	51	23	Woburn	4	1
Cambridge	25	7	Marlborough	4	2
Lowell	34	12	Westfield	4	—
Lynn	23	5	Peabody	—	—
New Bedford	20	5	Revere	3	—
Springfield	19	4	Clinton	0	—
Lawrence	27	10	Attleboro	6	1
Somerville	24	4	Adams	3	1
Holyoke	22	6	Gardner	—	—
Brockton	14	—	Milford	3	1
Malden	8	3	Weymouth	3	—
Salem	16	3	Framingham	5	1
Chelsea	11	3	Watertown	3	1
Haverhill	16	3	Plymouth	1	—
Newton	10	1	Southbridge	1	—
Fitchburg	13	5	Wakefield	—	—
Taunton	15	2	Webster	—	—
Everett	4	2			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DEC. 19, 1906.

ROSENAU, M. J., passed assistant surgeon. Granted leave of absence for nine days from Dec. 21, 1906. Dec. 18, 1906.

OAKLEY, J. H., passed assistant surgeon. Granted leave of absence for three days. Dec. 13, 1906.

COFER, L. E., passed assistant surgeon. Leave of absence granted Passed Assistant Surgeon Cofer for one month and eight days from Nov. 21, 1906, amended to read eighteen days. Dec. 15, 1906.

GRUBBS, S. B., passed assistant surgeon. Granted leave of absence for three days from Dec. 25, 1906. Dec. 19, 1906.

AMESSE, J. W., passed assistant surgeon. Granted leave of absence for seven days from Dec. 10, 1906. Dec. 13, 1906.

RANSOM, S. A., acting assistant surgeon. Granted twenty-two days' extension of annual leave on account of sickness from Nov. 20, 1906. Dec. 14, 1906.

TROXLER, R. F., pharmacist. Leave of absence granted Pharmacist Troxler for twenty-two days from Dec. 10, 1906, amended to read eighteen days. Dec. 13, 1906.

PROMOTIONS.

PHARMACIST C. R. MCBRIDE promoted from pharmacist of the third class to pharmacist of the second class, effective Aug. 15, 1906. Nov. 28, 1906.

PHARMACIST GEORGE NEVES promoted from pharmacist of the third class to pharmacist of the second class, effective Nov. 17, 1906. Dec. 18, 1906.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING DEC. 29, 1906.

G. P. LUMSDEN, medical inspector. Commissioned medical inspector, with rank of commander from Sept. 6, 1906.

W. S. PUGH, passed assistant surgeon. Commissioned passed assistant surgeon, with rank of lieutenant, from Sept. 23, 1906.

E. C. TAYLOR, F. E. CAMPBELL, J. E. GILL, I. S. K. REEVES, Jr., passed assistant surgeons. Commissioned passed assistant surgeons, with rank of lieutenant, from Oct. 12, 1906.

V. C. B. MEANS, surgeon. Detached from the Navy Yard, Mare Island, Cal., and discharged from treatment at the Naval Hospital at that Yard, and ordered to the Army and Navy General Hospital, Hot Springs, Ark., for treatment.

J. M. MOORE, surgeon. Detached from the "Indiana" and ordered home.

D. N. BERTOLETTE, medical director. Detached from duty in command of the Naval Medical Supply Depot, New York, N. Y., Jan. 8, and discharged from treatment at the Naval Hospital at that place, and ordered home to wait orders.

P. FITZSIMONS, medical director. Detached from the Navy Yard, Washington, D. C., and ordered to command the Naval Medical Supply Depot, Navy Yard, N. Y., Jan. 8, 1907.

H. T. PERCY, surgeon. Ordered to the Navy Yard, Washington, D. C., Jan. 3.

APPOINTMENT.

DR. SIMON F. COX has been appointed superintendent of the new tuberculosis hospital to be erected in Boston.

RECENT DEATHS.

DR. CYRUS K. BARTLETT, a pioneer physician of Minneapolis, died recently. He was seventy-seven years of age. Dr. Bartlett was a native of Boxford, Mass. After graduating from the Harvard Medical School he practised in Boston six years. In 1868 he was appointed first superintendent of the insane asylum at St. Peter, Minn. After twenty-five years of service he resigned and went to Minneapolis.

DR. TIMOTHY H. BISHOP died last week in New Haven, Conn., where he had been prominent as a physician for almost half a century. He was graduated at Yale and the period of his active life was spent in New Haven.

HENRY WATSON DUDLEY, M.D., M.M.S.S., died in Abington, Dec. 29, 1906, aged seventy-five years.

DR. FRANK E. BECKWITH, who died in New Haven on Dec. 27, was well known and highly esteemed in New York, where a large portion of his professional career was passed. For a number of years he was the resident physician-in-chief at the Nursery and Child's Hospital, which position he resigned in order to accept the professorship of obstetrics in the Yale medical school.

BOOKS AND PAMPHLETS RECEIVED.

The Practical Medicine Series. Under the general editorial charge of Gustavus P. Head, M.D. Vol. viii. Series 1906. Chicago: The Year Book Publishers.

The Practitioner's Visiting List. Philadelphia and New York: Lea Brothers & Co. 1907.

Pulmonary Tuberculosis, Its Modern and Specialized Treatment. With a Brief Account of the Methods of Study and Treatment at the Henry Phipps Institude of Philadelphia. By Albert Philip Francine, A.M. (Harv.), M.D. (U. of P.). Illustrated. Philadelphia and London: J. B. Lippincott Co. 1906.

Midwifery for Nurses. By Henry Russell Andrews, M.D., B.S. Lond., M.R.C.P. Lond. Illustrated. New York: Longmans, Green & Co. 1906.

Text Book on Diseases of the Heart. By Graham Steell, M.D., F.R.C.P. With an Appendix on The Volume of Blood in Relation to Heart Disease. By J. Lorrain Smith, M.A., M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1906.

The Practical Medicine Series. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M.D. Vol. ix. Series 1906. Chicago: The Year Book Publishers.

Helouan, An Egyptian Health Resort and How to Reach It. By H. Overton Hobson, M.D. (Edinb.). Illustrated. London, New York and Bombay: Longmans, Green & Co. 1906.

Report of the Surgeon-General U. S. Navy, Chief of the Bureau of Medicine and Surgery, to the Secretary of the Navy. 1906. Washington.

Transactions of the Maine Medical Association, 1906. Vol. xv, Part 3. Portland, Me.

Iodophilia: A Pathological and Clinical Study of the Iodine Reaction in One Hundred Cases. By John C. Da Costa, Jr. Reprint.

Surdité and Infection Eczémateuse. Par le Dr. Marcel Natier. Reprint.

A Guide to Diseases of the Nose and Throat and Their Treatment. By Charles A. Parker, F.R.C.S. Edinb. Illustrated. New York: Longmans, Green & Co. London: Edward Arnold. 1906.

Tumours, Innocent and Malignant, Their Clinical Characters and Appropriate Treatment. By J. Bland-Sutton; F.R.C.S. Fourth edition. Illustrated. Chicago: W. T. Keener & Co. 1907.

Original Articles.

RENAL AND URETERAL HEMATURIA.*

BY ARTHUR L. CHUTE, M.D., BOSTON.

HEMATURIA, or the appearance in the urine of a sufficient number of red blood corpuscles to change its color, may be of renal origin in a considerable number of conditions. Though one often speaks of a "hematuria" much as if this constituted a disease in itself, it should be remembered that it is only a symptom.

Some of the renal hematurias are the local manifestation of a general disease or condition, as is the case in the hematuria of malaria, scurvy and hemophilia; they have sometimes been termed secondary hematurias; more are the sign of a local diseased condition, as is the case in the hematuria of nephritis, calculus, cancer and tuberculosis; they are termed primary. I shall consider only such of the primary hematurias as indicate local diseased conditions that are amenable to surgical treatment.

In any case presenting the symptom "hematuria" we have two problems that must be settled before we can apply intelligent treatment. The first is the determination of the source of the bleeding; the second the determination of the nature of the lesion that produces the bleeding.

While renal and ureteral hematurias differ from those of urethral origin, in that they are always "total," that is the blood is intimately mixed through all the urine, there is nothing in their appearance that can be relied upon to distinguish them from hematurias of bladder origin. Before the advent of cystoscopy many rules were formulated to differentiate the renal hematurias from those arising in other parts of the urinary tract. The more careful study that this subject has received since the introduction of cystoscopy has taught us that practically none of these rules can be depended upon; that all are subject to frequent exceptions.

Thus one of the things that was commonly held to be a distinguishing point between renal and bladder hematurias was the color of the bloody urine. It was considered that the hemorrhage was from the kidney when it was dark and from the bladder when it was bright. It is true that renal bleeding is more likely to be dark than bright, but there are so many exceptions to this that one is never safe in concluding from the color alone that a given hematuria is, or is not, of renal origin. Cases of bright bleeding are not infrequently found to be of renal or ureteral origin as happened in one of the cases I shall refer to later.

Another point that was supposed to distinguish a renal hematuria from one of bladder origin was the condition of the blood corpuscles. It was assumed that the so-called "abnormal blood" was renal in origin. This does not apply at all in cases where the amount of kidney bleeding is very considerable, and only to a limited degree when it is small.

There are two things, however, that if present have considerable value in determining the probable site of the bleeding. When the urine contains any considerable number of cylindrical clots one may assume with a fair degree of certainty that the bleeding is from above the bladder, though occasionally one sees clots from a bladder hemorrhage that are longish and have some resemblance to ureteral casts. The presence of renal casts in a bloody urine is highly suggestive that the bleeding is from a kidney; the probability is much strengthened if there are numerous casts with blood corpuscles adherent. While the presence of either of these signs has considerable positive value, their absence is not in the least against a hematuria being of renal origin.

Not only must one be very cautious how he draws conclusions as to the origin of a hematuria from its gross or microscopic appearance, but he must also bear in mind that subjective and objective symptoms may lead him astray. Perhaps I cannot give a better illustration of this last fact than to quote a case that has been reported by Mr. Swan of London.

A woman, thirty, began to have pain in the left costovertebral angle two years before she was seen by Mr. Swan. Six months after the beginning of her pain, hematuria appeared and she had recurring attacks for a year. Six months before operation the hematuria became constant and the pain in her left loin more severe. Her left kidney could be palpated and it was tender though not apparently enlarged. The natural inference was that the bleeding came from her left kidney. Cystoscopy, however, showed a pedunculated papilloma that was attached just at the outside of the left ureteric orifice. The growth was removed with relief of her symptoms. The hematuria was from the growth, the pain and tenderness in her left kidney was due to a partial occlusion of the ureteric orifice by the dragging of the growth.

Such cases emphasize the fact that cystoscopy is the only accurate means that we have of distinguishing between a vesical hematuria and one of renal origin. The use of any of the various segregators would, in a case like that just cited, have led to faulty conclusions.

Cystoscopy allows us not only to determine whether the bleeding arises from the bladder or further up the tract, but also in the latter instance to determine from which side it is; or if it is from both, as occasionally happens, to recognize this fact. Fortunately, in conditions that are confined to the upper urinary tract, cystoscopy is relatively easy since we do not have to contend with an intolerant or light-absorbing bladder. When the hematuria is considerable the colored urine will be seen issuing from the ureteral orifice in little puffs, that look not unlike little puffs of smoke as the bloody urine is pumped from the ureter into the clear bladder medium. When the blood is small in amount it may be impossible to determine by inspection alone which side is bleeding, and one may have to add to simple cystoscopic examination catheterization of the ureters.

*Read at Hartford, Conn., Oct. 22, 1906, at a joint meeting of the Hartford Medical Society and the New England Urological Society.

The assumption that blood seen issuing from a ureteric orifice has its origin in the kidney of the same side is in the main justified, but it does not hold absolutely; the bleeding may exceptionally arise in the ureter itself. The following case is one that I think of considerable interest in this connection and I shall therefore report it in some detail.

The patient, a man fifty-two, was sent to me for examination in April, 1906, by Dr. E. H. Stevens, of Cambridge. He had had no previous urinary disease; neither his family nor personal history threw any light on his trouble. One year before his urine had been bloody for a week; with this hematuria, he had a little uneasiness in the small of his back. Three months before he was seen he began again to pass bloody urine. Treatment had no effect. When seen he had the semicachectic pallor seen in long continued hemorrhages. Neither kidney was tender or palpable. His urine was usually dark but on several occasions it was bright red. He had passed no clots. His urine allowed to settle in a cylindrical glass for twenty-four hours gave a compact deposit of blood that was 5% the height of the column of urine. Repeated examinations showed a urine containing normal and abnormal blood cells with an occasional leucocyte. There were no casts and practically no epithelial cells. Two cystoscopic examinations showed a normal bladder with bloody urine coming from the left ureter. There was no localizing symptom other than a dull backache. I suspected cancer, or a focus of chronic nephritis in his left kidney, and advised operation. He was unwilling to submit to operation until May 31, at which time he was so weak that he could not continue at work. The kidney which was high up was not enlarged as a whole, but had on its anterior surface a small nodule that seemed to extend deeply into the kidney tissue, and which both Dr. Stevens and I thought to be a cancerous mass. The kidney was therefore removed. No blood was found in the pelvis and the mass on the anterior surface extended but a short distance into the kidney substance. Microscopical examination by Dr. Leary showed that this nodule was a bit of misplaced adrenal tissue that was not proliferating, and that the kidney itself was in every other respect normal. The man bled for the first few days following operation much as he had before it. The bleeding then grew less and ceased on the sixteenth day. He remains well and there has been no recurrence of his bleeding.

I believe this an instance of bleeding of ureteral origin that ceased only with the atrophy of the ureter that followed its disease. Had I catheterized his ureter, collecting specimens from different levels along its course, it is probable that I should have gotten bloody urine from the lower part of the ureter and clear urine from the kidney pelvis. This catheterization of the ureter by sections is probably the only way of distinguishing the rare cases of hematuria of ureteral origin from those of renal origin. The recognition of similar cases is, perhaps, of more theoretical interest than practical importance, since it is questionable whether anything less than nephrectomy would stop the hemorrhage; though temporarily putting the ureter at rest by means of a nephrotomy might suffice and would be worth trying. So much for the localization of the source of the bleeding in hematurias arising in the upper urinary tract.

Having localized a hematuria as being of renal origin and recognizing that it is only a symptom of some local diseased condition it is necessary to determine if possible its underlying cause. For this purpose it is insufficient in most instances to confine one's attention to the hematuria alone; one must consider all the other symptoms that the disease presents and all evidence that can be brought out by different methods of examinations. In a large proportion of renal hematurias it will be found that the bleeding depends upon one of four conditions: malignant disease, calculus, tuberculosis, or chronic nephritis. The relative frequency of these makes their recognition particularly important and I shall consider them before taking up any of the less well-known causes of renal hematuria.

Malignant disease usually occurs in persons over forty, and a very large proportion bleed at some time during the course of the disease. The hematuria is often sudden and profuse; exercise may increase it, but rest on the other hand has little effect in diminishing it. The urine itself shows little other than blood; occasionally when the growth is of the renal pelvis masses of cancer cells may be found, but this is unusual. As a rule the kidney will not be enlarged or nodular in the early stages, the time when it is especially important from the therapeutic standpoint to recognize the disease. Naturally malignant disease of the pelvis will show bleeding much sooner than growths that begin deeper in the substance of the organ. As a result, in malignant disease of the pelvis, it will be unusual to find an enlarged kidney at the beginning of the hematuria, while in cancer that originates in the kidney tissue the organ may be enlarged when the bleeding first appears. The hematuria is at first usually painless; later there may be colicky pain due to clots passing the ureter. There is no involvement of the ureteric orifice, so often seen in renal tuberculosis. Cachexia is not a very early sign and may be closely simulated by any long continued renal bleeding. I have seen a moderate evening temperature in a patient with cancer of the kidney. The points upon which one must depend principally for early diagnosis are: A painless hematuria, usually rather profuse, that is, uninfluenced by rest, coming on without cause in a person of forty or more; a urine that shows little beside blood; a non-sensitive kidney that may or may not be enlarged. A nodular, firmly adherent kidney belongs to the stage when the disease is practically inoperable. Sarcoma, the malignant disease of the kidney that is seen more particularly in children, though not restricted to them, bleeds less often than carcinoma. It grows rapidly and the size of the kidney mass will usually leave little doubt as to the diagnosis.

Renal calculus may be seen at a much earlier stage than cancer; many of the patients are young adults. There is often the history of the previous passage of renal stones or gravel. The hematuria may or may not be attended with pain. In the aseptic cases it may be quite painless and in these same cases there may be no enlargement of the

kidney and little or no tenderness on pressure. In the infected cases there will usually be pain, increase in size of the kidney and tenderness on pressure. When pain is present it is, of course, not the colicky type seen during the passage of a small stone along the ureter. Profuse hematuria is less common than in cases of malignant disease. The increase of bleeding brought on by exercise or jolting is a long recognized sign that is of considerable value, especially when absolute rest in bed will bring about the practical disappearance of microscopic blood. The most accurate means of diagnosis is by radiography, which will give a shadow in a large proportion of cases, but may not in the case of pure uric acid stones. Beside the blood one always finds in the urine a considerable amount of mucus and usually an excess of leucocytes and epithelial cells; crystals may or may not be present; one often sees a few hyaline casts. In the infected cases there will be evidence of an inflammatory process of the kidney pelvis.

In the case of a young man who has recently been under my care, and in whom the x-ray shows a shadow in the left kidney, though the presence of a calculus has not yet been verified by operation, there has been practically no symptom other than hematuria. This has existed now for nearly six months. There has been no pain at any time, the kidney has not been enlarged or tender, and until he was cystoscoped there was nothing to point to which kidney was bleeding. The bleeding has always been increased by exercise, while on one occasion macroscopic evidence of bleeding wholly disappeared after a period of rest in bed. The urine is sterile and the inoculation test has failed to show tubercle bacilli. In non-infected primary renal calculi the absolute lack of all symptoms other than a slight hematuria may render it difficult to convince the patient of the importance of radical treatment at the time when it is most easily and safely carried out.

Renal tuberculosis is most commonly seen in early adult life, though it is by no means restricted to this period. The hematuria in these cases is usually small in amount and intermittent in character, though it may be occasionally profuse and continuous. Thus Trautenroth removed a tuberculous kidney, that was threatening life from hemorrhage, on the sixteenth day after the appearance of the first symptom, which was, in this case, hematuria. In tuberculosis the kidney is likely to be enlarged and is usually tender. There is commonly pain in the renal region. The urine will show beside the blood a greater or lesser amount of pus and pelvic epithelium. The presence of a thickened ureter on the bleeding side is highly suggestive of tuberculosis, as are ulcerations or a localized area of cystitis about the ureteric orifice of the same side. The real test as to the tuberculous nature of the hematuria is the finding of tubercle bacilli in the urinary sediment or the production of tuberculosis in guinea pigs by inoculations of this sediment. In rare instances there may be small well-walled foci of tuberculosis deep in the sustance of a pyramid that have no connection with the renal pelvis. These may cause hematuria by congestion or interference with the renal circulation and yet no tubercle bacilli may be found in the urine until such time as there is a connection between the focus and the renal pelvis. Cases of this sort are most confusing.

Our knowledge that a *chronic* nephritis may give rise to a hematuria is relatively recent. These hematurias differ from the bleedings occasionally seen in acute nephritis in that they last much longer and are often profuse. They may occur in a nephritis of the medical type or in one due to an infection. The hematuria is usually intermittent and may extend over a very long period as in a case reported by Keersmaecker, where the bleeding lasted two years and a half. The hematuria may, however, be continuous and moderately profuse, as in a case I reported before the American Urological Association in June, 1906, where the patient was reduced to marked feebleness after a month of hematuria. The hematuria is usually painless, but may be attended with uneasiness or actual pain in the flanks. The kidney may be enlarged or not; it may be tender or non-sensitive. While excessive exercise and exposure to cold will usually increase the amount of bleeding, rest in bed, even for a month, may not have any effect in diminishing it. This is one of the conditions in which a bilateral hematuria has occasionally been noted as in the cases reported by Legueu and Nicolich. The urine may at times show only blood, but a large proportion of the cases will show in addition to blood a few casts. When the hematuria depends upon a localized focus of nephritis the casts may be found only when there is no bleeding or when it is relatively small in amount. At other times the blood passes the tubules too quickly to allow of clot formation. In some of the hematurias of the toxic type other signs of a toxic nephritis may be present. The urine is sterile in the cases that are purely toxic in type, while it contains organisms in a considerable proportion of the cases of infectious origin. In the type due to infection the bladder may show changes about the ureter; if present they will be much less marked than in the tuberculous cases, and the ureter itself will not be appreciably thickened. It may be very difficult at times to differentiate between the hematuria of chronic nephritis and that of malignant disease.

There are beside the above mentioned causes of renal hematuria others that are less common. Hydronephroses have been found in which the sac was filled with bloody urine as noted by Albarran. Should this occur in an open hydronephrosis as in Rovsing's Obs. IV, one would have a one-sided hematuria, which should be easy to recognize because of the elastic mass and the fact that a ureter catheter passed to the renal pelvis would drain off a large amount of bloody urine. No case of this sort has come under my own observation. A movable kidney may produce hematuria as has been pointed out by Albarran. The bleeding is, as a rule, slight. Unless there is a pelvic retention that becomes infected the urine shows practically nothing but blood. There will be a palpable and movable

kidney. I have seen but one case of this kind.

Cysts of the kidney may occasionally give rise to hematuria. Debaisieu cites a case in which a cyst as large as an orange situated in the lower pole of a kidney led to a long continued and profuse hematuria. I have recorded the case of a patient in whom the rupture of a small retention cyst in the upper pole of the kidney on the eleventh day after a prostatectomy led to death from hemorrhage, on the twenty-third day. In my patient an open-mouthed vessel was found in the edge of the ruptured septum between the cyst and the kidney pelvis.

The invasion of the kidney by certain parasites, such as the tenia echinococcus and distoma hematobium, may give rise to hematuria. In this country we see only cases that have acquired the disease elsewhere. The diagnosis will be evident from the finding of the cysts and hooklets in the one and the *ova* in the other. Rovsing records an interesting case of hematuria due to a supernumerary renal vessel bow-stringing the kidney pelvis. There is in fact no injury, no disease, no abnormality of the kidney that may not under certain conditions give rise to hematuria. In a considerable proportion of these hematurias a diagnosis can be made; in some I believe a diagnosis is impossible without an exploratory operation.

Although the instances in which a hematuria has been actually proven to be of ureteral origin are relatively few, some things suggest that they are more frequent than we have supposed. There are some reported cases where a kidney that has been removed for hemorrhage has shown no lesion and yet the hematuria has not stopped at once, but as in the case I have cited, the bleeding has continued for a time, then diminished and finally ceased. These cases are very suggestive of a ureteral origin.

While we know that the ureter is subject to primary malignant growths, to kinks and strictures, all these are occluding in nature and not likely to cause bleeding from the ureter itself. On the other hand there seems no good reason to doubt the possibility of a papillomatous condition of the ureter, as occurs in other parts of the urinary tract; this, or varicosities, or ulcers due to infarctions, I should expect would be much more likely to give rise to hemorrhages. My own experience with hematurias of ureteral origin has been limited to the reported case and to instances of hematuria accompanying the passage of renal calculi; the latter are too characteristic to require comment. In my case had the hemorrhage been due to a stricture or kink the upper portion of the ureter would have been dilated. It was not. The lapse of time since operation is an argument against malignancy. Primary malignant disease of the ureter is rare and in the reports of the few cases with which I am familiar bleeding has not been a prominent symptom. This was the case in the instances reported by Adler, Metcalf and Vorpahl. Impacted calculus also seems improbable as there was no history of colic. The most probable cause seems to me to be either a papillomatous or varicose condition of the ureter or an ulcer.

With the exception of the cases of calculi, our present knowledge of the causes of ureteral hematurias and the different symptoms that they produce is so small that we are unable to distinguish one from another. The most that we can expect to do is to recognize that a given hematuria is ureteral in origin.

To recapitulate: We have but one way to definitely distinguish between a hematuria of the upper urinary tract and one of bladder origin. That is by means of cystoscopy, — simple inspection of the ureteral orifices in some cases, combined with catheterization of the ureters in others. We can distinguish between a hematuria of ureteral origin and one of renal origin by passing a ureteral catheter and noting if the urine from the kidney pelvis is bloody as well as that from low in the ureter. In a large proportion of the cases of renal hematuria we can arrive at an accurate diagnosis of the cause of the bleeding by means of a careful consideration of the symptoms combined with an accurate examination of the patient and study of his urine. Our knowledge of ureteral hematurias is so small that we can, at present, do little in the way of determining their underlying causes.

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REPORT OF A CASE OF CANCER OF THE UTERUS ALIVE AND WELL SIX YEARS AFTER PANHYSTERECTOMY. FIVE YEARS AFTER THE HYSTERECTOMY SYMPTOMS OF GASTRIC CANCER CAUSED BY HERNIA OF THE STOMACH WITH ADHESIONS. OPERATION. RECOVERY.

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A RADICAL and early operation is the only hope of permanent relief in any case of carcinoma, and every case alive and well over five years after operation should be reported. Only by reporting these cases can statistics of value be obtained,

and only in this way can the rank and file of the medical profession be made to realize the importance of the earliest possible recognition of the disease and its thorough removal. Cancer of the uterus so often results fatally, in spite of any form of treatment, that every case cured by operation should be the cause of much satisfaction and encouragement. It is believed that it is proper to use the word " cured " in regard to all cases of malignant disease alive and free from recurrence five years after operation.

There is little doubt but that if all cases, and especially those of squamous cell carcinoma of the cervix, were recognized as such and sent to the surgeon early, and in all of them some sweeping method of removal of the uterus and its environment, as outlined below, were adopted, the percentage of cures in the statistics of operation for this dread disease would be larger. That it is not larger up to the present time is due to several factors: (1) The insidious onset of the disease. (2) The neglect of many medical men in not accurately investigating with the microscope the cause of irregular uterine hemorrhage, which often is the only suspicious sign in the first stages of the disease. (3) The tendency of many surgeons to do palliative or incomplete or vaginal operations when a radical abdominal operation with dissection of the ureters, removal of the broad ligaments, iliac glands and the upper part of the vagina, is the only procedure that can hold out hope of cure.

It is unfortunately true that this tendency among certain surgeons prevails, not only in regard to uterine cancer, but cancer of the breast, jaws and tongue as well, because of an idea that the disease is bound to recur in any event. There can be no more harmful teaching. Eliminating those cases that are so far advanced that only curettage or the removal of a sloughing, foul mass can be done, and omitting also those cases in which demonstrable metastases in the liver or other organs exist, all cases of cancer should be operated upon with the greatest radicalism. The operation for cancer of the breast should include the removal of the pectoral muscles with the lymphatic glands in the axilla and the root of the neck; the operation for cancer of the lip and tongue should include complete dissection of both cervical triangles; the operation for cancer of the uterus should include a thorough dissection of the pelvis with removal of the iliac glands.

Such an operation as described below is a serious one and takes time for its thorough performance, but in the absence of complicating organic disease its immediate mortality should be very low. The majority of the cases operated on by the writer, with the same precautions and attention to every detail, have shown as little reaction from the operation as the case to be described. It should be emphasized that obesity is a strong contra-indication to this form of operation; in very fat women not only the thick abdominal walls, but the infiltration of the subperitoneal tissues with fat give the minimum of space for manipulation and make the dissection of the ureters and glands a very difficult and dangerous procedure. In the opinion of the writer vaginal hysterectomy should always be the operation of choice in such cases.

The importance of the preliminary preparation cannot be exaggerated; nothing is more to be deplored than attempting this operation with a simple overnight preparation. It is important that the period of study and preparation before the operation should cover at least three days, the general condition of the patient should be observed and improved as much as possible, the action of the kidneys should be investigated, the vagina thoroughly cleaned and the intestinal canal emptied.

The writer is well aware that there is a wide difference of opinion in regard to the frequency of early metastasis in the iliac glands as well as in regard to the advisability of taking the extra time to dissect out these glands in every case. It is probable that the opinion of Cullen and Winter, that glandular metastasis does not take place until late in cancer of the cervix, is correct. In the following case although the glands were enlarged and softened, examination failed to show cancerous metastasis. This probability, however, cannot justify the routine leaving of these glands. One can never be sure as to the presence of metastases in them and frequently the condition of the patient will justify the added amount of time needed to remove them. It seems as rational to the writer to do this whenever possible as to remove the neighboring glands when operating for cancer in other localities.

The case reported below was a case of squamous cell cancer in the beginning of the second stage of its growth, the stage of papillary overgrowth with necrosis and foul discharge. The second operation, done five and one-half years after the hysterectomy, for a ventral hernia, furnished an unusual opportunity to prove by inspection and palpation of the peritoneal cavity entire freedom from recurrence of malignant disease.

Mrs. C., thirty-five years old, married, entered the West Surgical Service of the Massachusetts General Hospital, Jan. 1, 1901. Through the kindness of Dr. H. H. A. Beach, the writer, his assistant surgeon, was given charge of the case and permitted to operate.

Family history unimportant. She had been married thirteen years; no children; no miscarriages. Until six months before operation she considered herself perfectly well save that since marriage she has been treated occasionally by physicians for " womb trouble," but in so far as could be ascertained, this treatment was for no very definite symptoms. Catamenia before this present trouble had been regular and normal. Six months before entering the hospital the patient first noticed pain in the pelvic region, especially early in the morning, soon followed by irregular hemorrhage. The pain gradually grew worse, it was of a dragging character and the patient located it in the uterus. She consulted a local physician who told her that the pain was due to some ulceration of the womb and treated her by local applications. There is no evidence that a diagnosis of carcinoma was made at this time, or that any attempt was made to obtain tissue for microscopic examination. For three weeks before entrance a constant, foul smelling discharge was present.

The patient stated that she had lost eighteen pounds in weight in a few weeks.

Examination: A fairly well developed and nourished woman. Heart and lungs normal. A catheter specimen of urine showed no renal disease. On palpation of the abdomen marked tenderness was found in the median line low down above the pubis. On the anterior lip of the cervix of the uterus was an ulcerated area 2½ cm. in diameter, with indurated, elevated edges and with beginning papillomatous elevations in one or two spots. The whole of the anterior lip was enlarged and very firm. The disease did not extend apparently to the mucous membrane of the vagina. The diseased area bled very freely when touched. There was much foul discharge in its neighborhood. Bimanual examination found that the uterus was somewhat enlarged, slightly retroverted and movable. In the left broad ligament there was some thickening and induration without definite outlines. The left ovary was enlarged and prolapsed behind the uterus. Temperature 98.8°, pulse 73, respiration 24.

Physical examination in other respects was negative. A small piece of the disease was removed for microscopic diagnosis; this the pathologist found on examination to be typical squamous cell carcinoma.

After a period of thorough preparation for four days, during which time particular attention was paid to emptying the intestinal tract and to cleansing the vagina, the operation was performed by the writer on Jan. 9, 1901.

The operation corresponded, with slight modifications, to the method suggested and adopted practically simultaneously by Ries, Rumpf and J. G. Clark. The anesthetic used was ether; twenty minutes before anesthesia begun a hypodermic injection of morphine sulphate, gr. ⅓ and atropin sulphate, gr. 1-510 was given. The operation was divided into a short vaginal stage, and an abdominal stage. With the patient in the dorsal position the vagina was cleansed most carefully with green soap, permanganate of potash and oxalic acid and corrosive sublimate solution 1-3000. The diseased area on the cervix was carefully cauterized with the Pacquelin cautery. The mucous membrane of the posterior cul-de-sac, as high up as possible behind the cervix uteri, was grasped by a pair of long clamp forceps; these forceps were left in position as a guide during the abdominal operation. The bladder was emptied by catheter. With the patient in the Trendelenberg position an incision 5 in. long was made in the median line of the abdomen. After walling off the general abdominal cavity from the pelvis with gauze, the fundus of the uterus was grasped and pulled up by double hooks. After the ovarian vessels had been ligated close to the pelvic brim with chromicized catgut and divided, the peritoneum over the iliac vessels was split until the ureter on each side was found. After the round ligaments had been ligated and divided, the broad ligaments were opened widely and the course of the ureters carefully followed. At this stage of the operation, gauze tapes were put under each ureter so that no mistake in isolating them when ligating the uterine vessels or dissecting the iliac glands and freeing the bladder from the cervix and vagina could be made. The ureter does not tolerate rough handling, but the writer has found that this method of holding them up out of harm's way, if ordinary precautions are taken, does not injure their blood supply. The uterine arteries were ligated on both sides at their point of origin. The bladder with the ureters was pushed forward and dissected free from the upper part of the vagina. With the bladder held well forward and the ureters held up by tape as described, the iliac glands on both sides were carefully removed, together with as much parametric tissue as possible. The three glands lying at the junction of the iliac vessels on the left were markedly enlarged and soft and the tissues around them much infiltrated, insomuch that it was thought at the time that cancerous metastasis had taken place. Subsequent examination, however, showed no metastasis, although so far as known no very thorough serial section examination was made. The upper part of the rectum as well as the bladder was freely separated for a considerable distance from the vagina, which was divided with the thin cutting blade of the Pacquelin cautery two inches below the cervix of the uterus, forming a large cuff. An iodoform gauze drain was placed in the vagina and the peritoneal flaps closed over the amputated vagina and gauze drain by a continuous chromicized catgut suture. The abdominal wound was sewed up without drainage and a pint and a half of normal salt solution was left in the abdominal cavity. The patient was put to bed in good condition and the head of the bed elevated a foot for reasons of reversed postural drainage. The patient made a successful and uneventful recovery. There was but little reaction in the pulse and temperature immediately following the operation. The vaginal gauze was removed on the third day. At the end of a week there was considerable purulent discharge from the vagina which continued for ten or twelve days, but needed no further treatment than sulpho-napthol douches twice a day.

Examination with a speculum at the end of the second week showed a clean granulating area in the vaginal vault with a sinus about one inch long. At no time during the convalescence was there any abdominal tenderness or any trouble with the bowels, kidneys or bladder. The patient's general condition was remarkably good and she was discharged from the hospital on the fifth of February, just one month after entrance.

A pathological examination of the uterus was made by Dr. W. F. Whitney and is as follows:

"A papillary mass 2.5 cm. long from the anterior lip, which was enlarged but not much everted. The infiltrating growth was an opaque, yellowish mass in the region of the internal os.

"Microscopic examination showed large branching solid masses of flat epithelial cells with a tendency to degeneration of the middle portions of the columns, separated by fibrous tissue stroma, rich in small cells, among which are many eosinophiles. Epidermoid cancer."

The writer kept informed of the whereabouts of this patient and has had the opportunity to see and examine her each year. For five years after the operation she remained in perfect health and weighed about forty pounds more than at any time before the hysterectomy. In May, 1906, nearly five and one-half years after the first operation, she was sent to the writer by her family physician, Dr. McGinley, of Ipswich, Mass., with the following history:

Since January, 1906, she has suffered from indigestion and severe abdominal pain varying in intensity, but always situated just to the left and above the umbilicus, near the top of the old scar. For four or five months she had vomited frequently and for the last month had not been able to retain any amount of food on her stomach. The vomitus had sometimes been dark brown and sometimes lighter red in color. She had never vomited large amounts and had never had tarry stools or jaundice. She had lost fifteen pounds since the first of January.

The history strongly suggested cancer of the stomach. Examination was as follows: The woman looked sick

but was in good flesh. No masses could be felt in the abdominal cavity. Rectal and vaginal examinations proved negative. The cicatrix of the old incision extended from above the pubis to about one inch above the umbilicus. It was strong with the exception of the upper two inches, where there was some tendency to ventral hernia on coughing and when the patient was in an erect position. Just above the top of the circatrix was a markedly tender area about the size of a half dollar. Pressure here was always painful and to this spot the patient referred most of her pain. Nothing could be felt underneath this area. Nothing was obtained from a fasting stomach, but after a test meal four ounces of brownish fluid was obtained which showed the slightest possible trace of free hydrochloric acid. Upon inflation the stomach reached to the level of the umbilicus.

Here, then, was a patient whose symptoms suggested strongly malignant disease of the stomach, presumably a recurrence of the cancer removed over five and one-half years before, but the well nourished condition of the woman, the sharply localized tenderness and the suspicion of a beginning ventral hernia near this area of tenderness led one to think that possibly intra-abdominal adhesions binding down or dragging on the stomach might be the cause of the symptoms. It was admitted that the dark-brown vomitus and the almost entire absence of free hydrochloric acid pointed with marked emphasis to gastric carcinoma.

On the 16th of May, 1906, a second operation was done by the writer, and to his relief no malignant disease was found. There was a hernia of about one third of the greater curvature of the stomach, together with a large piece of the great omentum into a peritoneal pouch just above and behind the upper part of the old wound. The stomach and omentum were bound down strongly by adhesions in this peritoneal sac. The stomach was carefully separated and the omentum tied off after which the old scar was completely excised and the rectus muscles brought together throughout the whole length of the wound. Before the incision was closed thorough inspection and palpation of the abdominal cavity was made. There was no evidence of anything abnormal in the pelvis nor in the general abdominal cavity. The stomach was entirely normal in appearance and feeling.

After the operation the patient made an uneventful recovery except for some stitch abscesses in the abdominal wall. She has had no pain or vomiting since the operation and has regained flesh lost. Her appetite and digestion are excellent.

It seemed to the writer that the pathological cause for the symptoms was unusual. It is interesting that the impinging of about one third of the stomach in a moderately tight hernial sac could cause sufficient passive congestion of the mucous membrane of the stomach as to be responsible for coffee-ground vomitus and also to cause sufficient diminution of the glandular activity as to result in the practical absence of hydrochloric acid.

THE SURGICAL ASPECTS OF BRONCHIECTASIS, PARTICULARLY IN CHILDREN AND YOUNG ADULTS.

BY CHARLES GREENE CUMSTON, M.D.,
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Although the study of inflammatory dilatation of the bronchi has been gone into since it was first taken up in 1818 by Laënnec, it was not satisfactorily concluded until the latter part of the last century. This was due to the little amount of interest and attention which had been shown relative to this pathologic condition, the reasons for which were probably due to the fact that the commencement of bronchiectasis usually eludes the attention of the physician, because he is more particularly engrossed in the symptoms of bronchitis, bronchopneumonia, foreign bodies in the air passages and so forth, which generally are the etiological factors of bronchial dilatation and which were present a considerable length of time before the process under consideration makes itself evident. Then, again, another difficulty presents itself in making a diagnosis. It is often very difficult, if not to say impossible, to arrive at a correct diagnosis from one examination or at long intervals. Only an extended and careful watching of the patient, and this from day to day, can put the medical man on the right track. Then, again, the study of this affection was influenced in former days simply because the treatment was the same whether the case was one of chronic bronchitis, putrid bronchitis or bronchiectasis.

Of recent years more attention has been paid to bronchiectasis, and like many other medical affections it has entered into the field of modern surgery, and the lung, which until only recently has been considered as inaccessible to surgery, has finally been placed within its reach. At the present time pulmonary cavities containing purulent fluids are being opened and drained according to the ordinary principles of the treatment for abscess in general, but with more experience it has been found that the prognosis of pneumotomy for various suppurative processes in the lungs varies greatly. But now operative treatment of tuberculous pulmonary cavities has practically been abandoned, and I believe that at the present time it may be said that the only ulcerative processes in the lungs adapted to surgical interference are those of acute and subacute gangrene. Simple abscess formation does not require surgical interference, while in cases of chronic gangrene, bronchiectasis and tuberculous foci the prospects of a recovery by means of pneumotomy are poor, on account of the multiple foci of disease usually present in these cases. The operative results in cases of suppurative processes in the lung having proven to have been so inconsistent, much more judgment is required at the present time in making a differential diagnosis as well as the topography of the lesion. For a long time bronchiectasis was believed to be an affection of the later years of life, but opinions of eminent writers have varied

considerably in this respect. Dieulafoy believes that this process is met with in the middle and advanced ages of life, while Grancher, on the other hand, states that, although it is more frequent in adults, bronchial dilatation should be looked for in children, and in them it is not very infrequent. It would probably be found more frequently if autopsies were more complete and an examination of the principal ramifications of the bronchial tubes were made.

At the present time it is generally admitted, I believe, that bronchiectasis is fairly frequent in childhood and that not infrequently this process when met with in adults may have originated in the early years of life. Heubner is of the opinion that bronchiectasis in the adult can be traced back to early childhood, usually the result of bronchial dilatation following upon catarrhal pneumonia. It would appear, however, that bronchiectasis in children is easily overlooked. The process occurs as a circumscribed, chronic bronchitis with exacerbations in the form of recurrent pneumonia always attacking the same pulmonary lobe. According to Lapin, there are two conditions upon which the frequency of bronchiectasis in children depend, namely, the thinness and flexibility of the bronchial tubes as compared to the adult, and the variety of etiological factors. He records a number of necropsies, among which will be found quite a few relating to children. Generally, the reports given are too incomplete, probably because the primary disease of which bronchiectasis is a complication, such as bronchopneumonia, measles, whooping cough and so forth, frequently cause death before the bronchial dilatation has become marked, and consequently is overlooked at autopsy. Besides this, the ectasis may be so gradual that when fully developed the patient has already become an adult. From his researches, Lapin concludes that the principal etiological factor for the development of bronchiectasis is some acute disease of the lungs and bronchi, later on followed by pulmonary sclerosis. He points out that the sclerotic process, whatever may be its cause and which produces dilatation of the bronchial tubes, results in this process on account of a decrease in the elasticity and degeneration of the muscular structures of the latter. A pneumonia alone, without sclerosis, never produces dilatation of the bronchial tubes, while acute bronchopneumonia is accompanied by acute bronchiectasis, the latter subsiding with the disappearance of the former process. If the cough be continued the dilatation continues.

Bronchiectasis may also result from pleural adhesions, empyema and chronic bronchitis from the retention of the secretions set up by these processes. Laceration of the bronchial tubes is thought by some authorities to be a cause of dilatation.

In older subjects, on account of stagnation of the sputum, pulmonary degeneration easily results and then a large cavity may develop.

Before giving the histories of the cases which have been under my personal observation I would like first to discuss those reasons which will lead to a diagnosis of bronchiectasis, particularly in children; and from the very start it should be recalled that the relations of the pleural cavity and lungs differ in children from those in adults and are the cause of the many differences in the symptomatology of the affection in the earlier days of life. The clinical histories frequently offer such important points, more particularly in instances of bronchiectasis of long standing, that if one can ascertain the past pathologic history of the patient, one may not infrequently take for granted that bronchiectasis is present, and this with a considerable amount of certainly. In most cases bronchiectasis develops slowly along with the progress of some pathologic process of the respiratory apparatus; whooping cough appears to play a very important part. In these cases it will usually be learned that the child does not recover properly, and during the further progress of the process he generally suffers from cough and expectoration, these symptoms recurring periodically under the influence of certain causes.

There are also cases where the child has been perfectly healthy, other than for relapses of certain diseases, such, for example, as pneumonia, but in other respects the general health is not impaired, or, if so, to a slight extent only. The appetite will be found good, there is a gain in weight and the child looks perfectly well; in short his general appearance would lead one to assume that he enjoys perfect health.

Now, unfortunately, from these very facts the bronchial process is very frequently overlooked, but to the careful examiner there is one primal symptom which points to the existence of this affection; I refer to a shortness of breath, palpitation upon slight exertion, such as going over the stairs or walking, and possibly a rise of temperature after exercise.

The sputum is of particular importance; it is generally supposed that it is very profuse in this disease, principally containing pus. Microscopically the absence of Koch's bacillus must be proven, as well as the presence of elastic fibres, in order to make a differential diagnosis from ulcerative processes having other origins. The consistency of the sputum is not considered by some as the most important factor in the diagnosis of bronchiectasis, but the manner in which it is expectorated is held to be of importance. The consistency of the matter voided may result in some errors, and it has been pointed out by Gerhardt that in dilatation of the bronchi one should not be too greatly influenced by the physical properties of the sputum. A profuse, purulent, stratified sputum is also encountered in other diseases, such as putrid bronchitis or an intrapulmonary rupture of an empyema.

The amount of sputum also greatly varies in that it is not always stratified, occasionally only little pus is found in it, while, on the other hand, the presence of elastic fibres may be detected when ulcerative processes complicate the bronchitis. Bronchiectasis can only be proven to exist

by the sputum when the patient has been watched for a certain length of time and the manner of expectoration noted. Not infrequently there are long intervals of time when the child is free from expectoration; and when this does occur the discharge of profuse purulent expectoration may be relatively short. The bronchial tubes may also empty themselves in an attack of vomiting, but generally speaking there are one or several attacks of expectoration daily. Not infrequently these evacuations have been found in relation to certain circumstances, such as in the morning, when the child was turned in bed, or from some excitement. Von Criegern has related a case of an adult who always had an enormous evacuation when he endeavored to stoop down, while Quincke has noted that in many cases of bronchiectasis cough is slight during the day and the first half of the night, but that toward morning the patients may expectorate a cupful of purulent sputum. It would appear from this that the secretions must accumulate during the night, and on account of this supposition Quinke applied this therapeutically by causing the patient to be placed flat at the end of the coughing spells at about six o'clock in the morning and at eight o'clock in the evening for two hours and then later raised the foot of the bed higher. After this treatment was carried out there was a marked decrease in the secretion at the end of from two to four weeks. In this way the secretion can be better emptied from those portions where the mucous membrane is insensible to irritation and thus congestion and decomposition of the sputum are prevented.

Quincke, in speaking of this procedure, says that it is applicable in cases of sacculated and cylindrical bronchiectasis, particularly so during exacerbations of the process; whereas in diffuse bronchitis there is nothing which is of any help when the general secretion is uniform and pus cavities are present communicating completely or incompletely with the bronchial system. Thus in perforated pleural empyema or similar conditions where the secretion, on account of its irritating properties, results in a continuous and profuse catarrhal secretion from the bronchial mucosa.

This process, to a certain degree, may aid in verifying the diagnosis if the latter is doubtful. Von Criegern resorted to the Quincke position successfully as an aid to diagnosis, and he considers that, with the exception of discovering the local condition by means of the x-ray, it is the most important advance in the diagnosis of bronchiectasis. I would point out, however, that this only holds good when large cavities are present.

As to what these physical examinations accomplish it may be said that Strümpel holds that the entire portion of the thorax in the neighborhood of an extensive bronchiectasis is retracted and shrunken. Percussion sound is usually dull or it may be replaced by a dull tympanitic note, while the respiration may lose its vesicular character, becoming blowing and finally bronchial in nature, while usually many moist, medium and even coarse râles may be heard when the cavities are large and situated near the thoracic wall, and finally evidences of typical symptoms of cavities may result.

In children, however, these signs on auscultation are not to be found, because, generally speaking, large cavities develop very slowly and the seat of the bronchiectasis is usually in the lower lobes, and it is only infrequently that large dilatations arise on account of the flexibility of the neighboring organs, so that the process most frequently represents fissured sacculated dilatations filled with secretions. Otherwise, the physical condition of the patient is far from making evident the presence of several bronchiectasic dilatations.

Reigner has thoroughly recognized the difficulty of diagnosis, from the fact that both auscultation and percussion fail to reveal any particular characteristic evidences of bronchiectasis in children, while other writers have expressed similar views.

It is different, however, when a careful, clinical observation shows great changeableness in the physical condition so that the most acute symptoms are of the greatest value for a local diagnosis. Sonorous and coarse râles may mean cavities, especially when bronchial breathing is sometimes heard where it is not usually to be found. Quite frequently a change in the clinical manifestations occurs spontaneously and is revealed on auscultation. In a cavity which is filled there may be complete dullness and absence of respiratory sounds, but after coughing a dull tympanitic sound is elicited and various modifications of bronchial breathing may be present accompanied by moist, sonorous râles.

Vierordt calls attention to another symptom, namely, that in deep inspiration a sudden change in the character of the breathing may be found; sonorous rhonchi lose their sonorous pitch, while vesicular breathing becomes bronchial in character. Then again the changes taking place between morning and evening, as well as from day to-day, are characteristic of this affection. Of course, the reason for this is naturally to be found in the varying conditions of fullness of the bronchial cavities. One is dealing with a change whereby a greater extension of the peribronchial process is not always the cause, it being due merely to a simple atelectasis and compression of the surrounding tissues.

Inspection of the thorax need not of necessity show a depression or retraction of the affected side, for this is frequently wanting, and on the other hand one may have a barrel chest in those cases where an empyema has developed. The explanation of this is that bronchiectasis, as a purely local disease, is far from being sufficiently injurious to the body, as, for example, pulmonary tuberculosis. X-ray examination has also been resorted to for diagnostic purposes, particularly for the local diagnosis, but it frequently fails, as do other physical methods of examination. Quincke believes that it is of some value in cases where the

manifestations are acute, because it will reveal the presence of both superficial and deeply seated foci and will more or less differentiate the parts which contain air from those which do not, and it is especially valuable in bringing to light unrecognized multiple cavities. In the cylindrical bronchiectasis it is apt to prove a failure, but it has been found very valuable in those cases where the dilatations were fairly developed to such an extent that von Criegern found that out of a total of 21 cases it successfully demonstrated the condition in 20.

Curving of the finger nails and drumstick fingers frequent in bronchiectasis and these symptoms should always be looked for.

Now, observation has shown that bronchiectasis is usually unilateral, occurring more frequently on the left than on the right, usually involving the lower lobes, rarely the upper, and much stress has been laid upon this fact by Grancher in making a differential diagnosis between tuberculosis. Von Creigern found that out of a total of 35 cases sacculated bronchiectasis is more frequent in the lower lobe and on the left, he finding 25 instances where the process was seated in the left, in 7 on the right and in 2 it was bilateral in the lower lobes. In 1 case the left lower and upper lobes were involved, while in the cylindrical type of the process the location could not be ascertained.

The treatment of bronchiectasis has been purely symptomatic up to within a short time. Direct action on the diseased structures has been endeavored to be obtained by inhalations of ol. terebinth or eucalyptus, carbolic acid and so forth, but at the best only the foul odor of the sputum has been removed, otherwise there is no curative effect.

Operative treatment by injections or incision and drainage prove to be dangerous. Elevation of the pelvis, placing the patient on the healthy side and so forth, have not been successful in obtaining the desired result.

Operative treatment was attempted a few years ago, its object being to give exit to the pus and allow the cavities to close up by granulation. The operation is radical in its results and consists in resection of one or several ribs after which the pus cavity or cavities are opened and drained. The result, however, cannot be called exactly brilliant and those who have resorted to this method have usually found that their patients recovered with a permanent fistula. The two principal dangers of this operation are, firstly, the development of a pneumothorax after the lungs have been opened, and secondly, the danger of infecting the pleural cavity from the pus. If, however, the pleural layers are adherent these two dangers are naturally avoided, but pleural adhesions cannot always be diagnosed with certainty before the operation.

The operation has also been carried out in two stages. After the thorax was opened iodine was injected between the pleural layers which, after several days, resulted in adhesions, and then the purulent cavities were opened, but leaving aside the unpleasantness of performing two operations it frequently happened that no adhesions formed after the injection.

In 1897, Bayer was successful in immediately relieving a sudden pneumothorax giving rise to severe collapse, by grasping the collapsed lung with tooth forceps and suturing the pulmonary tissue to the costal periosteum. This procedure was resorted to upon several occasions and in 1903 Garré formulated the conclusions that with proper precautions even a complete pneumothorax is not a complication dangerous to life, while infection of the pleural cavity can be avoided by suturing the lung to the parietal pleura and packing. Personally, I have never seen any reason to fear operative pneumothorax, a point that I have insisted upon at some length in a paper on pulmonary surgery which was published last year in the St. Paul *Medical Journal*.

D'Azincourt found that out of a total of 38 instances of bronchiectasis surgically treated there were 28 recoveries and 10 deaths. Borchert operated on 5 cases of bronchiectic cavities which had arrived at the stage of softening and ulceration, only one of these patients recovering, while Eisendraht found 50% of cures, 15.3% improvements and 37.7% mortality. Garré reports 67 operations, and of these 21 died immediately after the interference or during the first few weeks. Forty-six cases, or 60%, are reported as cured, but among these unfortunately hardly more than 50% may be considered as cured, because the remaining were discharged with either a fistula, chronic bronchitis or some remaining evidence of bronchiectasis. Krecke considers operative interference permissible only when a bronchiectic cavity has been surely diagnosed, but a case of this description operated on by him died. Lenhartz performed 4 pneumotomies; 1, a girl, died shortly after the operation, while the remaining 3 were considerably improved, only 1 presenting a fistula. Lichtenauer has reported 5 cases of simple bronchiectasis and 10 the possessors of a putrid bronchiectasis. None of these were cured by operation. Hermann has had a partial recovery in 1 operation, while of 38 cases operated on by Tuffier 20 died; Schwalbe out of a total of 15 cases operated upon obtained an improvement in 8; only 1 was cured, while 6 died. Soulignac performed 45 pneumotomies, 13 resulting fatally, 25 were improved with fistulæ, while only 7 were completely cured. One successful case in a boy has been reported by Treupel. Out of a total of 211 pneumotomies for bronchiectasis 73 patients died, in other words more than 33%.

A comparison with the above results and those obtained by simple resection of the ribs is an impossibility because as yet there have been too few cases of the latter recorded. It may, however, be said that Lenhartz has reported two cases where the lungs were not incised and on Quincke's advice only a few ribs were resected with the result that one patient was cured, while in the second the amount of sputum was greatly diminished.

The reasons why I believe that pneumotomy

is a poor procedure in bronchiectasis are, firstly, there are ordinarily multiple foci of suppuration, the lesions being diffuse and not localized, so that the mere opening of one pus pocket followed by drainage is simply an incomplete procedure. Then again, when a single focus exists it is often a difficult diagnostic matter to make an exact localization of the lesion. Secondly, this operation is of absolutely no avail in those cases where the pus has a tendency to be discharged by way of the bronchial tubes. Thirdly, after the thoracic cavity has been exposed the pulmonary lesion is often very difficult to reach on account of retraction of the lung. And lastly, after incision the expansion of the organ and its elasticity in the rigid thoracic wall interferes with the process of repair. It may be said, however, that under certain conditions the surrounding healthy pulmonary parenchyma will, by its elasticity, follow the cicatricial contraction, while if the incision has been made in the lower portion of the lung, the diaphragm frequently aids repair by upward pressure. The condition of affairs is quite different however in the upper lobe, because the ribs at this point offer considerable resistance to retraction and consequently the conditions for wound repair are poor. In the lower lobe the expiratory force of coughing acts more markedly, but even then the secretions can be expressed from the bronchii of the lower lobe only when the ribs are flexible and yielding, the muscular power good and the pulmonary parenchyma itself normal; otherwise the secretions are retained in the chronically inflamed and indurated tissues, and this residual secretion acts as an inflammatory irritant. Naturally, if the patient be placed in the proper position a counteraction to the hypostasis is possible, but nevertheless the hypostatic congestion in the lower lobes is the main obstacle to a reparative process. In the upper lobes the principal obstacle is due to costal rigidity, while in the lower lobe it is, as I have said, hypostatic congestion.

From the above results Quincke came to the conclusion that in the operative treatment of bronchiectasis opening the cavity or cavities when present in the upper lobes was of minor importance, but that mobilizing the structures surrounding the lung by extensive resection of the ribs was the essential, while in the case of cavities in the lower lobes their incision and drainage is the most important point. Vierordt is of the opinion that this differentiation is impossible to strictly carry out, for physical reasons; and again he also takes into consideration the rather unsuccessful results obtained by drainage of pulmonary cavities. For this reason he decided to try extensive mobilization of the thoracic wall in all instances where the diagnosis of bronchiectasis of the lower lobes was made. The object to be obtained by this operation is to produce a very marked retraction of the lung by means of extensive costal resection over the diseased area. By this means the walls of the bronchiectic cavity are brought closely together, while the secretions contained within it are driven to the bronchi and are then expelled by coughing. This favorable action is increased if constant pressure by properly applied bandages and Quincke's position are also employed.

The results of this treatment have been satisfactory on the whole. Immediately after the operation there has always been noted a rapid decrease in the amount of expectoration, while the pus also soon diminishes, the children increased in weight and strength, while a physical examination has invariably shown a great improvement at the time of their discharge.

I would point out, however, that there are two difficulties in the operation which should be considered. If the parietal pleura is of delicate structure and not adherent, it is very easily lacerated and then arises the danger of infection and pneumothorax. The dangers of pneumothorax are, I believe, greatly exaggerated by certain operators and where small tears in the pleura have occurred in the conditions under consideration I am aware of no ill result accruing. Furthermore, in the case of children the ribs regenerate very rapidly when one has taken care to leave the periosteum, and therefore it is necessary either to resort to compression over the area of resection immediately at the time of the operation or eventually to remove the periosteum. I would say, however, that Vierordt did not take the latter fact into consideration.

The advantages of this extensive mobilization of the thoracic walls are, in the first place, the comparative safety of the operation, from the fact that the lung remains protected and also the possibility of draining the purulent secretions by way of the natural passages; and last, but not least, the very short time required for the process of repair to be accomplished.

Whether the results obtained are complete and permanent can only be ascertained after a more extended and vast experience; but at any rate the results so far obtained are certainly sufficiently encouraging to continue to resort to this operation in the future, more particularly so on account of its safety as compared with that of pneumotomy. If ordinary medical treatment, carefully applied and continued for some time, remains ineffectual, then resection of the ribs should be seriously considered. My experience in resection of the ribs for bronchiectasis in children is limited to two instances, but, on account of the excellent results obtained, I feel that the cases are worthy of record.

Case I. A boy, eleven and one-half years of age, was referred to me by the late Dr. Allen M. Sumner, of Boston, who, at the same time, gave me the following notes:

The child had always been well until the age of five, when he had scarlet fever. This was followed by a bronchitis, which was rather tenacious and lasted for several months. At the age of eight, he contracted whooping cough, since which time he has had a persistent cough accompanied by profuse expectoration of a thick, greenish sputum, although odorless. Appetite good and the child apparently has kept his average weight. Occasional night sweats.

Examination revealed a fairly well developed child, of healthy appearance. Weight 74 pounds. Some dyspnea upon exercising. The right side of the thorax drags on respiration and over the entire lower lobe there is diminished resonance. Breath sounds diminished, although they are more marked in the posterior axillary line just below the angle of the scapula. Numerous coarse, moist râles. Slight displacement of the heart towards the right. There is continued cough and expectoration of thick greenish sputum. Careful search for the tubercle bacillus upon several occasions was negative and no elastic fibers could be detected.

On account of the tenacity of the cough, in spite of a carefully directed medical treatment, operative interference was decided upon and on April 13, 1901, under ether narcosis subperiosteal resection of 5 cm: of the seventh and eighth ribs in the posterior axillary line was done.

The after events were simple. The wound healed by first intention. Three weeks after the operation there was still some dullness and many moist râles, but the cough and expectoration had considerably diminished.

In October, 1901, the general condition was excellent and the amount of sputum voided in twenty-four hours would just about fill the bottom of a cup. The right side of the thorax was somewhat depressed, but from careful examination no distinct dullness could be heard, and vesicular murmur was detected, although somewhat weak. The child had gained six and one-half pounds since the operation. The patient has been seen from time to time and has remained in excellent health.

CASE II. Female, seven years of age. No family history of tuberculosis. At the age of three and one-half had measles, followed by bronchitis, which has been present almost constantly ever since and is especially marked in winter. Upon several occasions the child has expectorated blood.

The expectoration is thick and yellow, but contained no tubercle bacilli. Occasional night sweats. The child was sent with a diagnosis of bronchiectasis of the left lower lobe.

Upon examination the child was fairly well nourished and healthy looking. Some bronchitis on the right. On the left posteriorly many coarse râles could be detected and the breathing sounds were bronchitic in character. After exercise the temperature rises a degree.

Under ether 7 cm. of the eighth rib was resected by the subperiosteal method, the operation being rendered somewhat delicate on account of marked adhesion of the parietal pleura with the ribs, but was finally accomplished without perforation of the former.

Two months later the notes read: "Appearance healthy and since operation the severe cough has disappeared, likewise expectoration. Appetite good. The thoracic cavities symmetrical. The left lung is quite movable, dullness has disappeared, likewise the râles."

CANCER IN HUNGARY.—A national conference on cancer in Hungary was held at Buda-Pesth on Nov. 15 and two following days. It was attended by more than 300 members of the medical profession. Professor Doellinger, to whose initiative the convening of the Congress was due, reported that, according to official statistics, there were on Oct. 15 of the present year 3,650 patients under treatment for cancer in Hungary. It was estimated that the total number of sufferers from cancer in Hungary is about 56,000. At the census of 1900 the population was 19,254,559.—*British Med. Jour.*

Clinical Department.

REPORT OF A CASE OF CARCINOMA OF THE VERMIFORM APPENDIX, PROBAB LY PRIMARY.

BY NATHANIEL R. MASON, M.D.,
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AND
LAWRENCE J. RHEA, M.D.,
Senior Pathological Interne, Boston City Hospital.

THE three excellent articles which have appeared recently upon carcinoma of the vermiform appendix make a further repetition of the literature on the subject out of place at the present time. These articles are: The section on "Malignant Tumors" in the chapter on "Neoplasms" in the work of Howard A. Kelly and E. Hurdon on the "Vermiform Appendix and Its Diseases," in the edition for 1905; the monograph of Leon K. Baldauf on "Primary Carcinoma of the Vermiform Appendix, with a Report of Three Cases," in the Albany *Medical Annals*, for December, 1905; and the monograph of H. D. Rolleston and Lawrence Jones on "Primary Malignant Disease of the Vermiform Appendix," in the *American Journal of Medical Sciences*, for June, 1906. The papers by Baldauf and Rolleston and Jones contain a most comprehensive and exhaustive review of the bibliography of the subject up to date. It is believed, however, because of the importance and rarity of malignant disease of the vermiform appendix, that the report of a single case is of value.

The patient whose case is here reported is a housewife, born in Germany, twenty years of age, and married two years.

Family history. — Does not know the cause of death of parents. One brother died at the age of twelve of an unknown disease.

Previous history. — Mumps in childhood. Indefinite history of convulsions in early life. No other illness up to 1903 when she had gonorrhea and salpingitis, and was operated upon Nov. 10, 1903, by Dr. Lund in the Boston City Hospital. Cyst of a size of small acorn attached to right ovary removed. Both tubes found inflamed, but nothing to warrant removal of either. Uneventful convalescence and discharged on the seventeenth day. Patient continued to have occasional pain in lower abdomen, which became constant in July, 1905, when she again entered hospital and had a second laparotomy on Aug. 8, 1905, by Dr. Newell. Left tube found to be the seat of a hydrosalpinx and removed. Left ovary normal. Right tube showed a condition of chronic salpingitis and outer one-third resected. Right ovary cystic and resected. Uneventful convalescence and discharged on the eighteenth day.

Menstrual history. — Catamenia began at sixteen years of age. Regular every twenty-eight days up to February, 1906. Duration, five days. Amount, two to six napkins during entire period. No pain. Never confined to bed. No catamenia from February, 1906, to June 16, when she flowed five days, using three to four napkins daily.

Denies obstetric history.

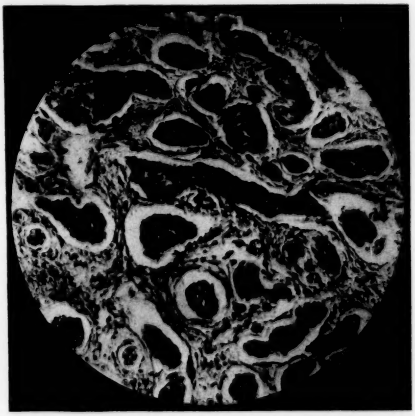
Present illness. — Well after the second laparotomy up to July 17, 1906, with the exception of a month following the operation, when she had occasional dull pain in the right lower quadrant of the abdomen which

gradually ceased. On July 17, she commenced to flow, and later in the day without warning she had a convulsion; generalized in character, bit tongue, grated teeth, frothed at mouth and talked. Did not have incontinence of sphincters. Unconscious for about two hours and then recovered consciousness, complaining of sharp and constant pain in left lower abdominal quadrant. Had a similar convulsion on following day lasting same length of time. After this second convulsion patient was seen by writer, in consultation with attending physician, and sent to the hospital.

Physical examination. — Well developed and well nourished woman. Neurotic and inclined to be hysteri-



Cross section of vermiform appendix showing lumen replaced by connective tissue in which groups of carcinoma cells are seen. The muscle coats show infiltration with carcinoma.



Nests of carcinoma cells from section 5 mm. from tip of vermiform appendix.

5 cm. long, and normal to sight and touch. Mesentery apparently normal. Meso-appendix tied off. Peritoneal cuff dissected back. Appendix tied and cut. Stump cauterized with 95% carbolic acid. Peritoneum closed over stump. Uterus suspended. Abdomen closed in layers.

Convalescence. — Patient made a normal convalescence, running temperature of 99° to 100°, pulse 70 to 80, up to afternoon of eighth day, when she had a chill, elevation of temperature to 104° and pulse to 120. Complained of pain over right lower chest where a slight friction rub was heard. Leucocyte count 11,600. Following morning temperature and pulse were normal and friction rub had disappeared, but pain continued for several days. Temperature and pulse ran practically normal during rest of convalescence. Stitches out on tenth day; wound healed by first intention. Out of bed on fifteenth, and discharged on twentieth day, Aug. 14.

Patient was seen on Sept. 25, and was in excellent condition. General appearance better than before operation. Weight 140 pounds. Stated that she had felt first rate and had been free from all pain up to nineteen days before, since which time she had been bothered by constant sharp pain in the left abdomen, low down during the day and high up during night. Abdominal examination revealed no cause for this

ing conditions:

In sections from the cecal and central parts the lumen contains a few desquamated epithelial cells, lymphocytes and plasma cells. In places the lining epithelium is missing from the surface with no inflammatory reaction beneath (post-mortem desquamation or abrasion by scissors).

The glands of the mucosa are normal. The lymphatic tissue which is abundant is negative.

The general picture presented by sections at different points through the distal 6 mm. of the appendix is as follows: The lumen is partially to completely obliterated by compact connective tissue in which are nests of epithelial cells and in places small masses of lymphoid

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Present illness. — Well after the second laparotomy up to July 17, 1906, with the exception of a month following the operation, when she had occasional dull pain in the right lower quadrant of the abdomen which

gradually ceased. On July 17, she commenced to flow, and later in the day without warning she had a convulsion; generalized in character, bit tongue, grated teeth, frothed at mouth and talked. Did not have incontinence of sphincters. Unconscious for about two hours and then recovered consciousness, complaining of sharp and constant pain in left lower abdominal quadrant. Had a similar convulsion on following day lasting same length of time. After this second convulsion patient was seen by writer, in consultation with attending physician, and sent to the hospital.

Physical examination. — Well developed and well nourished woman. Neurotic and inclined to be hysterical. Weight 150 pounds. Temperature 99.5°. Pulse 80. No glandular enlargement. Chest negative. Abdomen showed considerable tenderness over whole right lower quadrant, but no spasm. No distention. Tympanitic throughout. Firm median laparotomy scar two and a half inches long below umbilicus, containing small keloid. Vaginal examination elicited exquisite pelvic tenderness, more marked on the right side, and nothing definite could be learned about the pelvis. Moderate bloody vaginal flow. Urine examition: Color high. Reaction acid. Specific gravity, 1014. Albumin, slight trace. Sugar absent. Microscopical examination of sediment showed few crystals of calcic oxalate and few pus cells. Leucocyte count, 20,000.

The pain which appeared July 17, in the left lower abdominal quadrant disappeared from there the next day after the second convulsion, shifting to the right lower quadrant and persisted there up to the time of operation, but decreased constantly in severity under rest in bed and cold applications. Flowing continued three days and then ceased. Temperature ranged between 98° and 99.5° and pulse between 70 and 80. On July 21, a vaginal examination was again attempted but the patient became so hysterical and complained of such excruciating pain on palpation of the right cul-de-sac that nothing could be ascertained. On July 23, an examination was made under ether. Uterus was found to be of normal size, in good position and freely movable. Left ovary felt prolapsed and enlarged to about three times its normal size. Right cul-de-sac free. Laparotomy decided upon for purpose of resecting cystic left ovary.

The following operations were performed July 25, 1906, under my supervision by Dr. John T. Williams, gynecological house physician. In lithotomy position, uterus was curetted of considerable endometrium. Patient transferred to Trendelenburg position. Incision to either side of old laparotomy scar, excising keloid growth. Omentum found lightly adherent to under surface of scar and adhesions separated. Left ovary cystic and enlarged to size of a horse chestnut. Left tube absent. Ovary resected to about one-half normal size. Right tube found amputated at outer one-third. Right appendages otherwise normal. Appendix found to inner side of cecum, not adherent, 5 cm. long, and normal to sight and touch. Mesentery apparently normal. Meso-appendix tied off. Peritoneal cuff dissected back. Appendix tied and cut. Stump cauterized with 95% carbolic acid. Peritoneum closed over stump. Uterus suspended. Abdomen closed in layers.

Convalescence. — Patient made a normal convalescence, running temperature of 99° to 100°, pulse 70 to 80, up to afternoon of eighth day, when she had a chill, elevation of temperature to 104° and pulse to 120. Complained of pain over right lower chest where a slight friction rub was heard. Leucocyte count 11,600. Following morning temperature and pulse were normal and friction rub had disappeared, but pain continued for several days. Temperature and pulse ran practically normal during rest of convalescence. Stitches out on tenth day; wound healed by first intention. Out of bed on fifteenth, and discharged on twentieth day, Aug. 14.

Patient was seen on Sept. 25, and was in excellent condition. General appearance better than before operation. Weight 140 pounds. Stated that she had felt first rate and had been free from all pain up to nineteen days before, since which time she had been bothered by constant sharp pain in the left abdomen, low down during the day and high up during night. Abdominal examination revealed no cause for this pain which apparently was of neurotic origin. No glandular enlargement. Vaginal examination showed slight resistance in left cul-de-sac with moderate tenderness. Right pelvis negative.

In this case the appendix on inspection and palpation was apparently normal, but as the abdomen had been opened for another reason, it was removed to insure the patient, if possible, against a fourth laparotomy. It was not suspected that the appendix was in any way abnormal until the report of scirrhous carcinoma of the tip of that organ was returned from the pathological department.

In view of the fact that in most of the cases of carcinoma of the appendix discovered up to the present time, the condition has been revealed by chance, it would seem rational and expedient to make it a routine procedure to remove the appendix in every case where the abdomen is opened, in order to guard against the extension of malignant disease from a possible primary focus in the appendix.

I am indebted to Dr. Lawrence J. Rhea, senior pathological interne, for the following report of the specimens examined by him, and also for the microphotographs.

PATHOLOGICAL REPORT.

The specimens are three in number; curettings of the uterus, an ovary and the vermiform appendix.

The curettings consist of a few fragments of soft reddish gray tissue.

The ovary measures 2.5 cm. x 2.5 cm. x 1 cm. It contains several small cysts filled with thin, clear, straw-colored fluid.

The vermiform appendix measures 5 cm. in length. Externally it appears normal except that the distal end is quite firm and bears the imprint of a hemostat. The lumen is patent to within 6 mm. of its distal end where it is obliterated by firm yellowish tissue.

Microscopically the curettings are negative and the ovary shows simple follicular cysts. Sections made through the appendix at various points show the following conditions:

In sections from the cecal and central parts the lumen contains a few desquamated epithelial cells, lymphocytes and plasma cells. In places the lining epithelium is missing from the surface with no inflammatory reaction beneath (post-mortem desquamation or abrasion by scissors).

The glands of the mucosa are normal. The lymphatic tissue which is abundant is negative.

The general picture presented by sections at different points through the distal 6 mm. of the appendix is as follows: The lumen is partially to completely obliterated by compact connective tissue in which are nests of epithelial cells and in places small masses of lymphoid

tissue and epithelial glands. The size of the epithelial nests varies from a few cells to groups of considerable size. The larger groups are most numerous within the newly formed connective tissue and the longitudinal muscle coat near the proximal end of the obliterated lumen. In some of the epithelial nests there is a distinct tubular arrangement, but for the most part the nests are made up of closely packed irregularly shaped groups of cells.

The individual epithelial cells have a light staining nucleus with a small amount of pink staining cytoplasm. There are few mitotic figures. In some sections the epithelial nests have infiltrated both muscle coats of the appendix and in places have extended to the serous coat. Within the muscle coats the epithelial cells tend to follow the course of the fibers.

The following is a specific description of individual sections through the obliterated end of the appendix:

Near the tip the lumen is obliterated by dense connective tissue in which are groups of epithelial cells. The muscle coats are infiltrated. About 3 mm. from the tip the same general picture is seen together with small masses of lymphoid tissue centrally located.

About 5 mm. from the tip the nests of epithelial cells are present on one side only of the appendix. They lie chiefly in the mucous and submucous tissue and form a mass which bulges out so as almost to obliterate the lumen, which is adjoined in places by a few mucous glands and considerable lymphatic tissue. At one point only have the epithelial cells invaded the muscle coats.

Unquestionably the lesion is a scirrhous carcinoma originating either from the epithelium at the tip of the vermiform appendix or as a metastasis from a primary growth somewhere else in the body.

The following reasons may be urged for considering this a primary tumor of the vermiform appendix.

(1) Evidently the tumor arose from epithelial cells which have spread peripherally and longitudinally and infiltrated the muscle coats of the appendix.

(2) The new growth is sharply limited by the serous coat of the appendix.

(3) Clinically there is no evidence of a tumor elsewhere in the body.

(4) The tumor is of the slow growing scirrhous type which has been demonstrated to be primary in the appendix.

(5) The appendix is an unusual place for metastases to take place.

Anatomical Diagnoses. — Negative curettings. Simple follicular cyst of the ovary. Scirrhous carcinoma of the vermiform appendix.

Reports of Societies.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

TWELFTH ANNUAL MEETING, KANSAS CITY, MO., JUNE 11, 12, 13, 1906.

MONDAY, JUNE 11, 1906, MORNING SESSION.

REPORTS of the Section Meetings were read by DR. T. H. HALSTED, Chairman of the Eastern Section; DR. W. L. BALLENGER, of the Middle Section; H. BERT ELLIS, M.D., of the Western Section, and DR. H. L. MYERS, of the Southern Section.

ENDOTHELIOMA OF THE THROAT.

The President, DR. J. A. LOGAN, of Kansas City, Mo., exhibited a case showing an endothelioma of the throat. He had had the case under observation for about twenty-four days. The patient had been tested for specific infection. A number of slides had been made showing a perfect specimen. At the beginning his tonsil was the size of an English walnut filled with débris and foci. The x-rays were used and the growth had been reduced at least quarter its size during the past four weeks. There were periods when necrosed tissue was not distinguishable; the disease has not yet overtaken the soft palate. He had been given iodides up to 240 gr. a day to the point of iodism. A few of the anterior cervical glands were affected but they had disappeared. At the present time the patient is not receiving iodides; the x-rays are being used inside and outside also.

DR. R. LEVY, of Denver, thought the growth seemed to be fairly well circumscribed without involving the surrounding glands. He thought that a radical procedure was indicated at once, the patient being in good physical condition. He had no faith in the curative properties of the x-rays.

DR. E. W. DAY, Pittsburg, Pa., agreed with Dr. Levy that a radical operation should be performed at once. He cited three cases of sarcoma of the tonsil which had remained cured, one twelve years, the other six years and the third thirteen months. Every gland was removed in these cases, also a considerable portion of the tongue. The case had not reached the stage of softening.

DR. J. BECK, of Chicago, thought that the differential diagnosis histologically between endothelioma, a syphilitic growth and a small sarcoma was exceptional, endarteritis obliterans being present in the syphilitic condition. The slow growth of endothelioma was characteristic and diagnostic. He had operated a year ago on a similar case and there was at the present time but a slight recurrence. He thought radical treatment the only solution in these cases.

DR. H. W. LOEB, of St. Louis, had obtained good results with a special x-ray tube described in the *Archives*, in which the rays are more directly applied on the growth than by any other tube.

DR. M. A. GOLDSTEIN, of St. Louis, wanted to know if the posterior pharyngeal wall was involved. He had had two cases, one of endothelioma of the fauces and the other sarcoma of the tonsil both of which seemed to react nicely to the x-rays in daily treatments, and then the treatment was applied on alternate days for a month. He uses a small tube connected with a large cone-shaped part fitting over the x-ray lamp, and in that way was applied directly to the part involved. For a short time there was considerable reaction, but both patients died.

DR. F. E. MILLER, of New York, wished to know if the monopolar had been tried, or if radium had been used.

DR. J. E. LOGAN, of Kansas City, in closing the discussion said that the patient had hardly gotten under the influence of the x-ray; that he had had 17 or 18 applications, but the growth showed so little tendency to gummatous deposit or of breaking down that it and the potassium iodide treatment had been stopped. Radium and the monopolar had not been tried.

SWIVEL KNIFE FOR RESECTION OF THE SEPTUM.

DR. W. L. BALLENGER, of Chicago, exhibited the swivel knife which he thought of much use in resection of the septum (submucous), and in turbinectomies.

DR. J. BECK, of Chicago, thought the knife a very

practical one especially where there is much polypoid degeneration leaving a ragged edge after removal of the turbinate. The bleeding is very slight owing to the ragged edge of the wound which acts as a hemostat.

DR. J. A. STUCKY, of Lexington, Ky., presented a pathological specimen which was an alveolar sarcoma.

DR. E. B. DENCH, of New York, cited a similar case in which he had removed the entire temporal bone with good results.

DR. E. W. DAY, of Pittsburg, said that he had chiseled away two thirds of the petrous portion of the temporal for a brain abscess, and the only effect was to make one side of the face sink, but the patient is living. In this case the internal carotid had been exposed.

DR. E. B. DENCH, of New York, said the internal carotid in these cases had never given the least trouble. His growth was not quite as large as Dr. Stucky's specimen. He had exposed the dura, but it was not in involved.

OCULAR SYMPTOMS OF NASAL ORIGIN. REPORT OF A CASE OF RETRO-BULBAR NEURITIS AND OTHER ILLUSTRATIVE CASES.

DR. HILL HASTINGS, of Los Angeles, wrote this paper, but was not present, and on motion it was decided that the secretary read this paper. He reported five cases and all of them were relieved.

The Secretary, DR. PHILLIPS, said he would like to emphasize what every one believed, that the sinus very apt to give rise to severe ocular symptoms is the sphenoidal sinus. When deep-seated ocular headaches are present, one must be certain that the sphenoid is free from disease, and the ordinary washing or syringing is not the procedure that should be followed, but the anterior wall should be removed, thus making it impossible for the gelatinous masses to form.

DR. W. L. BALLENGER, of Chicago, said the sphenoidal sinus was often divided into septa, and irrigation on that account was not always successful, and in chronic or severe acute cases the columnar and ciliated epithelia has lost its cilia, and the epithelium may be broken down; hence the action of the cilia are responsible for carrying the secretion up to the estea. This, he further said, was true of the sphenoidal sinus; hence drainage of this sinus was imperfect on account of loss of motion of the ciliated columnar epithelia. In the paper the expression had been used that the ethmoidal labyrinth had been curetted; he thought it could be removed only in certain cases.

MIDDLE EAR SUPPURATION AS AN ETIOLOGICAL FACTOR IN RETRO-PHARYNGEAL ABSCESS.

DR. EDGAR M. HOLMES, of Boston, read this paper and thought that retro-pharyngeal abscess in the adult from any cause is rare; that middle ear disease rarely advances forward, but is occasionally the cause of retro-pharyngeal abscess; that when it has occurred thorough removal of granular and necrotic material is indicated, and a free incision through the pharyngeal wall, index finger placed in cavity to act as guide in using small aural curette. This proceeding was followed by permanent recovery. The external routes of attack are available, but all of them with the exception of removing the condyle of the jaw, offer little opportunity to inspect or attack the bone which is diseased.

DR. C. W. RICHARDSON, of Washington, D. C., had never seen any cases of this sort which did not have their origin in an ear condition.

DR. E. B. DENCH, of New York, reported a case in which a fourteen-year old girl had been operated on for chronic middle ear suppuration, and after the operation she developed a rise in temperature. Nothing was found in the throat. She was again etherized and on dissecting out the grafts and auditory canal and a tube passed to the Gasserian fissure and packed but the case died on the table on account of cerebellar abscess which had not been diagnosed.

DR. F. E. MILLER, of New York, reported two cases in infants, where quinsy and retropharyngeal abscess was present. The children almost succumbed after the lancing. A probe was later passed to where the tonsil had been. The ears had been examined but had proved negative.

DR. J. F. BARNHILL, of Indianapolis, did not understand clearly whether the infection had travelled through the middle ear outside or through the Eustachean tube. He thought ligation of the jugular would have proven beneficial.

DR. E. H. HOLMES, in closing the discussion said that the first case was seen so late it would have been unusual to have it hold without a mastoid operation, although the abscess was far down the neck. In the second case the woman made a good recovery without mastoid operation. There was no tubercular history in any of the cases.

AFTERNOON SESSION, MONDAY, JUNE 11, 1906.

REPORT OF A CASE OF INFECTIVE THROMBOSIS OF THE SIGMOID SINUS.

DR. H. BERT ELLIS, of Los Angeles, read this paper in which he had resected the internal jugular with the resultant recovery of the patient.

DR. E. B. DENCH, of New York, thought it a very interesting case and showed the good results that could be secured by prompt interference. He had seen a similar case in which there was a sudden rise in temperature; the entire drum membrane had been destroyed, and upon opening a thrombus extending to the jugular was found. Iodoform packing was put in to prevent infection from the broken down thrombus. The patient was placed upon the table with a temperature of 106°, yet she healed by primary union.

DR. E. M. HOLMES, of Boston, reported a case of a boy who had had headache for two days; he had had ringing in the ears for eleven years; temperature was normal. The ear had discharged a small amount of pus; but there was no tenderness of glands anywhere. The only marked thing was a subnormal pulse ranging from 42 to 50. When the mastoid was opened the cells were filled with granular tissue and the lateral sinus wall was of a darkish blue color and filled with pus. Before opening the sinus the jugular was tied and the upper portion dissected out, but there was still a dark appearance of the inner wall of the sinus. Incision was made and pus followed; when immediately cyanosis ensued and artificial respiration was resorted to. The patient at the present time is doing well.

SYMPOSIUM: RESULTS OF OPERATIVE PROCEDURES UPON THE NASAL SEPTUM.

"Sub-Mucous Resection" was advocated by DR. JOSEPH BECK, of Chicago.

"By Means of Various Incisions" was brought forward by J. F. BARNHILL, of Indianapolis.

"The Correction and Closure of Perforations of the Nasal Septum" was read by DR. M. A. GOLDSTEIN, of St. Louis.

SECOND DAY.

MORNING SESSION, TUESDAY, JUNE 12, 1906.

The discussion of the Symposium was taken up and opened by DR. WILLIAM L. BALLENGER, of Chicago,

who said that he did not defend the submucous operation; there are a great many things to be said in favor of this operation. He has used the Ash, Gleason and Watson operations as well as the Kyle method; he has sawn off spurs, bridges and has done modifications of all of the above operations. Before that he had used the Sajous or steel punch but has abandoned it. He still finds cases in which to-day the Ash operation is indicated. These old operations can very frequently be made use of with good results. He has performed in the last year and a half 117 submucous resections of the septum. From this operation he has gotten good results and also some that he has been sorry for. The chief difficulty with this operation seemed to be the separating or elevating the mucous perichondrium. He thought that whenever this difficulty was experienced just after making the Hyatt or Killian incision he is sure he is between the mucous membrane and the perichondrium, and it is possible to elevate it considerably without tearing. If it is resistant, he would advise taking a free elevator and start the mucous perichondrium and lift it from the cartilage; then introduce a dull Hyatt elevator and the balance is readily accomplished. He emphasizes the fact that one must be certain he is under the perichondrium. The operation can be done in a truly surgical way. Submucous resection can be done with the nicest technique and should appeal to all. He is also of the impression that some instrument should be devised that will cause many of those at present in use to be abolished, as he thinks the fewer number of instruments used the better.

DR. F. E. MILLER, of New York, said he had done the operation several times but he had had great trouble in securing efficient local anesthesia. He takes three strips of gauze after cocainizing the nose and the strips of gauze, these he inserts deeply into the nose with small triangular forceps with parallel blades and allows it to remain *in situ* for at least fifteen minutes, and the anesthesia is complete. He has usually used a solution of 2% resorcin and 4% cocaine and sprayed the nose, thus relieving the psychic effect of the cocaine; then he uses 10 gr. each of bromid of sodium, ammonium and potassium with aromatic spirits of ammonia, and he has no one faint, and the local anesthesia is profound. If the anesthesia is to be prolonged he uses a cocaine crystal locally and has continued anesthesia for one and three-quarter hours with the above procedure. He removes bone with the McCoy forceps. He always tries to avoid the anterior ethmoidal artery on account of having had two awful results from hemorrhage.

DR. C. W. RICHARDSON, of Washington, said that many who had gotten good results with the older operations were loath to give them up. He finds the perichondrium will loosen easily if before anything is done the septum is straightened with the finger. To bring the flaps in apposition nicely he uses a narrow spatula and after bringing the edges together covers it with collodion. It adheres perfectly. He has operated exclusively in the last few cases under general anesthesia thus getting a good result and having no faints or perforations or any other untoward effects.

DR. KASPAR PISCHEL, of San Francisco, thought that it was a serious matter to operate under general anesthesia. He suggested the use of hypodermic injection of ¼ gr. morphia half hour before operation, thus quieting the patient and lessening the quantity of cocaine to be used. He was also of the impression that collodion dressings covered the wound satisfactorily and prevented outside infection.

AN ORIGINAL RESEARCH ON THE CAUSE OF VOCAL NODULES.

This paper was read by DR. FRANK E. MILLER, of New York, who thought these nodules could be produced by means of infection of the tonsils and perverting the action of the thyro-arytenoideus externus muscle. He thought that by combining the efforts of all the throat specialists in the world a synthetic method of cure could be accomplished, thus helping the singers of the world to be entirely freed and to cast aside empirical methods.

DR. D. BRADEN KYLE, of Philadelphia, said that the singers' node was a tumor but not a neoplasm; there was a cellular change occurring in the swelling. He thought as did the author that the principal cause was an inflammatory process.

DR. J. A. STUCKY, of Lexington, Ky., said that he had seen a good many singers' nodules and his experience had taught him that the less he treated the larynx the better for the patient. The cord should be given rest and the nodule will disappear. He relies on diet in connection with rest and no local treatment.

DR. G. HUDSON MAKUEN, of Philadelphia, thought that singers' nodes was not a good name as they occurred in people who do not sing, but also in speakers and in coughing. He had seen it occur in a man who constantly used the 'phone and spoke to persons at long distances.

DR. F. E. MILLER, of New York, said in closing the discussion that the main object was to get some simple remedy in curing the condition and to help the multitude who are trying to get a correct vocal education.

A STUDY OF THE ANATOMY OF THE ACCESSORY CAVITIES OF THE NOSE, BY TOPOGRAPHIC PROJECTIONS.

DR. H. W. LOEB, of St. Louis, read this paper. [No abstract.]

THE FUNCTION OF THE ACCESSORY CAVITIES OF THE NOSE.

DR. J. M. INGERSOLL, of Cleveland, read this paper and said that the accessory sinuses of the nose in the lower animals are developed in connection with the olfactory portion of the nose. In animals which have an acute sense of smell, the olfactory (ethmoidal) turbinals exhibit a tremendously intricate development and the accessory sinuses are correspondingly more highly developed and all of them contain olfactory turbinal tissue. Their function is to conduct inspired air more directly over a large surface of the olfactory turbinals, which would not be otherwise exposed to air except by diffusion, and thus the accessory sinuses increase the acuteness of the sense of smell. In those animals in which the sense of smell is not acute, the olfactory turbinals have degenerated and receded from the accessory cavities. The cavities are left with comparatively smooth walls, their openings into the nasal fossæ contract and their functional activity is lost. In man the accessory cavities are almost completely shut off from the nose, their functional activity ceases, and they remain as rudimentary structures.

No discussion.

SECOND DAY.

AFTERNOON SESSION, TUESDAY, JUNE 12, 1906.

THREE CASES OF LARYNGEAL NEOPLASM.

DR. C. W. RICHARDSON, of Washington, read this paper, one a case of neoplasm in the larynx noted from six months to the ninth year of life, and now disappearing. The other a multiple recurrent papilloma

in an adult; and the third case one of laryngeal carcinoma, in which he had performed laryngectomy and showed the specimen. The patient who was seventy-two died on the morning of the fifth day of collapse. The speaker thought the most important thing was to ascertain whether these cases were operable or not. In this case the growth seemed to be localized and the outlook seemed very promising, yet the outcome was not favorable. Complete laryngectomy did not offer a very favorable result in the aged. The violence is great and it requires strong middle life to withstand the shock. To the author it seemed as though the operation narrated by J. Solis-Cohn would be indicated in these cases of stripping the perichondrium from the inner surface of the chondrium and thus removing the perichondrium, mucous membrane and growth *en masse*.

DR. R. LEVY, of Denver, said his experience had been limited to papilloma of the larynx in children.

DR. F. E. MILLER, of New York, thought that in papilloma of children a continuous spray of Thiersch solution four or five times daily and increasing its strength would improve the condition. He thought all these cases would finally come to tracheotomy and thyrotomy.

DR. H. W. LOEB, of St. Louis, had seen seven cases of carcinoma of the larynx which had been operated upon. One is living. In another case the patient had been comfortable for a year, a second operation was performed and that patient died. Another case was operated upon two and one-half years ago and five weeks later went to work again as a bricklayer and has been well since. His trachea is stitched to his skin. The next case was operated upon and proved to be atypically tubercular, and died two weeks after operation. The next case had a large carcinoma for which he had been treated five months. All structures were dissected from the larynx and the tracheal wound was attached to the neck wound, and one week later he had a slight hemorrhage. He had an embolism which probably originated in the jugular. The doctor thought it wise in considering carcinoma to look at the statistics of Szenziac. It seems that carcinoma remains intrinsic a long time and does not affect glands external to the larynx. He thought if the patient could be brought through the operation without serious results, he had a fair chance for recovery.

DR. C. W. RICHARDSON, in closing the discussion, said regarding thyrotomy in recurrent papilloma cases, it did not offer the best results. The preferable one in children was tracheotomy.

THE RESULTS OBTAINED FROM THE RADICAL OPERATION FOR CHRONIC PURULENT OTITIS MEDIA.

MR. EDWARD B. DENCH, of New York, read this paper and said that certain questions had arisen regarding the technique of the operation. First, the advisability of primary grafting; second, the advisability of secondary grafting at the end of five to ten days after the primary operation; third, the advisability of the introduction of grafts through the canal; and fourth anomalous methods of healing after skin grafting. He thought grafting advisable at all times; that convalescence is shortened if it is employed.

DR. NORVAL H. PIERCE, of Chicago, thought the tests for change in audition ought to be carried out; first the whisper test, then low sounds, then bone conduction and lateralization, and then Renne test to see if the stapes is ankylosed. Then the condition of the auditory nerves should be ascertained. When no ankylosis of the stapes is found and there is no nerve involvement, audition has been improved. It is necessary to insist on the exact test being made before operation, then one can ascertain if the operation increases or decreases audition.

DR. W. C. PHILLIPS, of New York, spoke of the fatalities attending the radical operation for chronic suppuration of the middle ear. Dench relates six fatal cases, and he wished to emphasize the fact that while the fatalities are few they have no special connection with the disease but they do occur.

DR. KASPAR PISCHEL, of San Francisco, remarked that the author had said the patients return complaining of the occurrence of suppuration. They think or say the operation did them no good. It seems to be the breakdown of the poorly nourished integument. The doctor has devised a flap which furnishes a good skin and permits of the immediate closure of the wound. The original cut is made behind the lobe, and the skin from the posterior wound as far as the high line of the flap is turned in to cover the upper wall and the upper part of the posterior wall. The lower part is covered by the flap, and the ridge of the facial nerve is covered by skin flap. In order to make it heal the superficial layers are removed with a cataract knife; this is closed up and the upper part covered with healthy skin.

DR. E. B. DENCH, closing, said that he had operated and exposed the facial nerve three-quarters inch and when it was picked up there was no response to mechanical stimulation, but two years later there was perfect control. Provided there is no division, there is no limit, according to the speaker, as to the time when the function may be restored.

A CASE OF STAMMERING ILLUSTRATING THE IMPORTANCE OF EARLY TREATMENT.

DR. G. HUDSON MAKUEN, of Philadelphia, reported two cases in which phonetics were largely used and dietary restrictions were imposed, and the children carefully watched. This treatment resulted eventually in recovery.

A MODIFIED BLOOD CLOT IN AURAL SURGERY.

DR. WM. SOHIER BRYANT, of New York, read this paper.

THIRD DAY.

MORNING SESSION, WEDNESDAY, JUNE 13, 1906.

The first order was the discussion on the paper of Dr. Bryant which was opened by DR. WENDELL C. PHILLIPS, of New York, who said that in New York all attempts at rapid healing by means of a blood clot in any form had met with almost invariable failure. He expressed surprise at the good results that were obtained outside the metropolis. Whether it was due to faulty technique or not he could not say. He thought probably the patients were not physically strong or had less resisting power. He does not think it possible to absolutely sterilize the field and keep it so. The wound communicates with the middle ear. He was extremely skeptical and hardly thought the plan could be adopted.

DR. E. M. HOLMES, of Boston, was much discouraged with the use of this operation. A modification of it with a cigarette drain might be used. If there was any method by which convalescence could be shortened he would be very glad to avail himself of it.

DR. W. C. BANE, of Denver, also had had unsatisfactory results with the operation. The wound had become infected and had to be cleaned out. He thought nothing could be gained by it.

DR. W. S. BRYANT, in closing, said the chief points in the technique were to watch the convalescence and

fairly good results were to be obtained. The reason of so many failures in New York was due, no doubt, to the fact that operators frequently allowed internes to apply the dressings and thus ran a greater chance for infection. The drainage was to be removed in from twenty-four to forty-eight hours, and if suppuration did occur to make a free opening. First intention healing was the usual rule even with a drain.

HERPES ZOSTER AURIS.

DR. DERRICK T. VAIL, of Cincinnati, reported a case in which this rare condition occurred and in which the very terrific pain which nothing was able to relieve seemed diagnostic. The blebs formed behind the ear in the mastoid region. He came to the conclusion that herpes zoster auris was like true zoster elsewhere,—a definite disease usually running an acute course; that it was very rare, but had been observed by a number of noted authorities; that it may involve the membrana tympani, as well as deeper parts of the auditory canal; that it was an acute infectious disease, causing neuritis, the storm center being in the ganglion of a sensory nerve; that lymphadenitis was almost invariably present and probably preceded the attack; that the treatment was of little avail; the disease usually running a rapid course and healing spontaneously.

DR. E. M. HOLMES, of Boston, saw a case eight or nine years ago, being called out at night to see a woman thirty years of age with a perfect past history. The pain had been intense for over two hours, of a neurotic and spasmodic character. Examination of the ear showed nothing abnormal, as did the nose and throat. He was at first inclined to think he had a reflex from a tooth. Morphia was administered in large doses, but the pain persisted. Heat and cold was tried but nothing relieved it. In thirty-six hours blebs began to form; the pains subsided in a few days and then began again. Three months later she showed a general herpes extending over several intercostal nerves. He failed to find a cause, and thought the ganglion theory rather hard to prove.

DR. W. C. PHILLIPS, of New York, thought that herpes appearing about the ears as common as the same affection appearing in other parts of the body. It was seen with comparative frequency in the clinics over which he presided.

THE PATHOLOGICAL PROCESSES ACCOMPANYING INFECTIONS INVOLVING THE ACCESSORY SINUSES OF THE NOSE.

DR. D. BRADEN KYLE read this paper. [No abstract.]

DR. DERRICK T. VAIL, of Cincinnati, offered a suggestion that instead of plugging up the nose tightly with pledgets of cotton which on removal allowed sudden influx of air and possible infection, the lamb's wool be substituted. This does not so easily become saturated.

H. W. LOEB, of St. Louis, said that with reference to the physiology of the sinuses, particularly the sphenoidal, ethmoidal and frontal, he had much inclined to consider that extensions of the respiratory portions of the nose as diverticula of the olfactory region. The nose after all was more largely olfactory than respiratory. It had been found in man and herbivora that this was so. It was important in removing so much of the outer walls of the sinuses; that the olfactory portions are placed in too close relation to the air, and he wished to emphatically emphasize this point.

DR. JOS. BECK, of Chicago, wished to speak of the diagnostic feature of radiography in these cases; that when there is intense distention and possibly the antrum filled with pus, transillumination will cause a darkness and shadow on that side. He has introduced films into the nose and has obtained the shadow on the affected side.

SYMPOSIUM. THE TREATMENT OF TUBERCULOSIS OF THE UPPER AIR PASSAGES AND THE EAR.

"MEDICINAL." This paper was read by DR. W. C. BANE, of Denver, who divided the treatment under constitutional and local. He placed great importance on rich blood as the destroyer of the tubercle bacill and hence the importance of a full nourishing diet. Forced feeding with rest, and guaiacol and creosote and calcium chloride he thought were the best aids. For the local treatment of tubercular laryngitis he thought a 4% solution of resorcin very beneficial, also a 1 to 1,000 solution of alphozone. The most efficient remedy at the present time he thought was formalin. Its administration should be preceded by an application of a 5% or 10% solution of cocaine or beta eucaine. As a local anesthetic orthoform locally, inhaled or as an insufflation had much benefit.

"SURGICAL." This was read by DR. ROBERT LEVY, of Denver, who thought the views of the majority of laryngologists had been unified; that surgical measures were controlled by the character of the lesion, their nature, extent and other complications, whether primary or secondary, and by the limitations placed upon the possibility of early diagnosis; that all cases of chronic suppuration of the middle ear in tuberculous individuals are not necessarily tuberculous; that the objects of surgical measures in tuberculosis of the ear are the removal of all available foci of disease, the removal of diseased bone and the establishment of drainage; that tuberculosis of the nose responded readily to surgical treatment, the methods used being curettement and excision by cold wire or galvanic cautery snare; that pharyngeal tuberculosis was a manifestation of the most asthenic form of the disease, presenting all conditions which contra-indicated surgical intervention; that operative intervention in pharyngeal tuberculosis was only palliative; that in laryngeal tuberculosis, deep incisions were valuable in edema and in uniform firm infiltration, their usefulness being increased by rubbing with lactic acid; that excision of tuberculous deposits was limited to those cases in which there was a certainty of completely removing the entire disease focus; that the extent of the involvement was often greater than could be determined by laryngoscopic or macroscopic examination; that curetting was valuable in ulcerations and soft excrescences, the character of the ulceration, however, modifying its applicability; that repeated and extensive operations could be performed provided the lesions developed progressively; that the galvanic cautery was useful in small easily accessible tuberculous ulcerations; that tracheotomy might prove of value in children and was always indicated for the relief of dyspnea; and that laryngectomy was probably never indicated.

"CLIMATIC." This paper was read by DR. LEVY in the absence of DR. WOLFF FREUDENTHAL, of New York, who emphasized strongly the necessity of giving tubercular patients the benefit not only of medicinal and surgical, but also of climatic treatment. That if, after thorough trial, the patient did not do well in one climate, he should be sent to another. He did not think it wise to become pessimistic after having tried one specific kind of climate or treatment without success; that whatever be the method of treatment, the physician should constantly maintain a spirit of optimism which would be an inspiration to both himself and his patient.

Dr. J. E. Logan, of Kansas City, in opening the discussion on the symposium emphasized the point that tuberculosis generally or of the air passages varies so greatly in different parts of the country that it was hard to make a separate division of treatment. He thought the cardinal principle was to maintain the general systemic condition.

Dr. W. C. Phillips, of New York, had no doubt that the greater percentage of chronic purulent affections of the ear were of tubercular origin. He had experienced great difficulty in making the diagnosis of tubercular conditions of the ear; that the microscopic discharges on examination did not reveal the presence of the tubercle bacillus. It could never be positively made except by pure cultures.

Dr. H. Bert Ellis, of Los Angeles, thought that if the diagnosis was made early the local, surgical or climatic treatment would result favorably.

Dr. H. W. Loeb, of St. Louis, had operated on cases of tuberculosis of the larynx with slight abatement of the symptoms and slightly increased length of life, but came to the conclusion that he would not interfere surgically in these cases, and one case treated this way lived seven years and died later of tuberculosis of the lungs. He thought, however, that the patient stood a better chance by being sent to the proper climate and then operated upon when the competent laryngologist, to whom he had been sent for the proper treatment, thought ripe.

Dr. Kaspar Pischel, of San Francisco, wished to call the attention of the society to the paper of Dr. Max Rothschild, of San Francisco, who uses Koch's tuberculin by subcutaneous injection with good results.

ETHER NARCOSIS BY RECTUM. REPORT OF CASES.

Dr. J. A. Stucky, of Lexington, Ky., read this paper and thought this method was of great advantage in surgery of the nose, throat and accessory cavities, where the gravity and annoyance of the anesthetic by inhalations is well known. He reports four cases in which this method was used. The patient passes under the influence of the drug rapidly and with no sense of suffocation; less ether is used not only in producing the narcosis but in maintaining it; the stage of excitement is lessened or absent; the ether recovery is more rapid, and the disagreeable after effects of ether inhalation are diminished or absent. The use of this method in diseases of the lungs, especially tuberculosis, abscess and pneumonia, immediately suggests itself; also in empyema, mediastinal and new growths. The greater part of the ether is also eliminated through the lungs, the direct irritation of the concentrated vapor is overcome and post-operative pneumonia should be lessened. The absence of bronchial secretions and vomiting has been a striking feature. In the cases reported by the author there was no diarrhea, bloody stools or rectal irritation that required any special attention. A slight tendency to constipation was observed. It was suggested that the absence of rectal irritation is due to more thorough preparation of the patient; to better quality of the ether used; improved method of administration. The bowels should be thoroughly cleaned out for forty-eight hours, the patient being kept upon a restricted diet, largely liquids. Five grains each of calomel, soda and salol were given, followed in eight hours by half ounce castor oil. The night before the operation two ounces of saturated solution of magnesium sulphate are given, followed in the morning by a large suds enema. Immediately prior to going to the operating table, another similar enema was given. These preparations and a breakfast of two ounces of beef tea were the only preparations. The patient was allowed all the water desired to within two hours of beginning the ether. The apparatus used was suggested by Cunningham and consists of a bottle, the body of which is 7½ inches in height, 5 inches being used for ether space, 2½ inches and the neck for vapor space; the diameter is 4 inches and the capacity in the ether space 29 ounces, so that a large amount of ether may be used without materially lowering the ether column. The afferent tube which leads to the bottom of the ether column ends in a bulb with several small perforations so that air ascends in several small bubbles. The stopper and connections should be tight. The bottle is placed in a water bath at a temperature between 80° and 90° F. Ether boils at 98.6° F. The efferent tube should be long enough to allow moving the wash bottle away in case the operator desires to change his position. A stiff rectal tube with a single eye at the end is used. The patient is placed upon his back with legs in slight flexion, and tube is inserted for a distance from 10 to 14 inches. Efferent tube is connected with rectal tube and vapor forced in until considerable gas is pressed around rectal tube. Keeping the forefinger in the rectum, unless it causes pain, hastens the expulsion of rectal gases. It is essential that the rectum be distended to the point of emptying itself around the tube, for without removing the gas normally in the bowels the patient absorbs the ether much more slowly. After the gas has been expelled, the ether should be forced in by a few squeezes of the bulb every five or ten seconds, or until it is expelled about the tube. The breath becomes ether laden in from one to five minutes, and the patient becomes drowsy, the breathing stertorous and he passes into complete surgical narcosis without a stage of excitement. After narcosis is complete two or three squeezes of the bulb a minute will keep it so, and the position of the tongue should be looked after and watched. If the patient becomes too profoundly anesthetized the efferent tube should be disconnected and such ether as is in the bowel forced out through the rectal tube by abdominal massage. An oxygen tank should be connected with the rectal tube and this gas made to distend the bowel. The first case was an empyema of the right maxillary and frontal sinus with polypoid degeneration of middle turbinate and anterior ethmoid cells. The second case one of empyema of the left maxillary and frontal sinus; left nares filled with polypi springing from ethmoid and middle turbinate. The third case was one of polypoid degeneration of both middle turbinate and ethmoid, and empyema of frontal sinus. The fourth case was one of empyema of the right maxillary, antrum and frontal sinuses, with polypoid degeneration of both middle turbinate and ethmoid cells. The method under discussion was used with success in all four cases.

Book Reviews.

Surgery: Its Principles and Practice. By Various Authors. Edited by William Williams Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. (Five volumes.) Vol. I. Illustrated. Philadelphia and London: W. B. Saunders Co. 1906.

In opening the first volume of this new work, one cannot help wondering whether the encyclopedic form is the ideal for the surgical text-book. It is obvious that it possesses great ad-

vantages, and equally certain that its drawbacks have been in this instance diminished to an irreducible minimum by one who both personally and professionally is regarded with sincere affection and respect by the entire medical world. If anything were needed to prove Dr. Keen's fitness for the great task he has undertaken, it is furnished in his admirable preface, which is a model that might well be followed by many editors. "It has been our aim to record the very latest well-established knowledge so that the work should be thoroughly 'up to date,' yet with few, if any, passing surgical novelties." Certainly an admirable aim, and one undoubtedly attained in this first volume.

There are sixty-six contributors to the complete work, six of whom are foreigners. The subjects have been allotted to these various writers with excellent judgment. The names of the contributors are, as the editor says, among "the brightest, most ardent, and earnest surgical scholars and experts of Europe and America."

The book as a whole excites practically unqualified praise; it is not unnecessarily large or heavy; the paper is good in spite of the high gloss; the type, though small, is clean cut and distinct, and the illustrations most admirable. All the pictures are sharp and clear in the smallest details, and many of them justify superlative commendation.

The first volume, evidently planned for eight hundred pages, contains practically one thousand. Sixty of these are allotted to an historical sketch of the subject. One leaves this article with but a single regret — that of its brevity. One hundred of the four or five thousand pages of the completed work would be none too much to assign to the historical aspects, personal and material, of surgery. We may quote one half line from it, "Alas, for our lack of space," with equal sympathy for both readers and writer! To tell history with truth, with a sense of proportion, with a fascinating style and in a compelling manner, is a gift which the writer of this article shares with but few in the profession.

The following monographs include Surgical Physiology, Blood Examination, Immunity, Inflammation, Suppuration Abscess and Fistula, Ulceration, Gangrene, Repair, Thrombosis and Embolism, Erysipelas, Tetanus, Special Infections, Diseases Derived from Animals, Traumatic Fevers, Scurvy, Rickets, Surgical Tuberculosis, Chancroid, Syphilis, Tumors and Wounds. An examination of these articles shows a minimum of duplication, and on the other hand, few gaps or omissions between them. The difficult and interesting subject of immunity is admirably treated and reduced to terms which should render it intelligible to a medical student as well as a general practitioner, an end not easily accomplished amid the confusing cloud of new and appalling names. Surgical physiology and inflammation are also unusually concise and convincing. Repair is one of the very best articles in the volume, and the writer on Traumatic Fevers deserves our particular gratitude for the bold manner in which he has simplified the subject and excised from it many inaccurate names and incorrect traditions. Besides being admirable in itself, the article on Scurvy contains some illustrations of histological specimens which may be described as absolutely perfect; one does not know which to admire the more, the original drawing or its remarkable reproduction. The longest article of the volume is on Tumors, and it is also one of the very best. A simple provisional classification is adopted which appeals very strongly to the general surgeon, and avoids complicated and involved divisions, which, after all, as the author says, could not be completely satisfactory to all authorities. The article on Wounds completes the volume and seems to cover concisely and most satisfactorily a subject which, though comparatively simple, is too often confused and unsystematic in its treatment. Shock and Collapse, which are included in this chapter, are illuminated by the results of the great amount of work which has universally associated the author's name with this most interesting subject.

The bibliography appended to each monograph is extensive, and gives immediate access to original sources upon each quotation. The practical application of researches, the therapeutic indications, whether operative or non-operative, the description of new methods and new apparatus are all ample and adequate. A satisfactory index follows the last monograph.

If this volume is the standard to which the four succeeding volumes shall attain, it is unquestionably true that the work will fulfill the highest hopes and wishes of the editor; it will be of value to students, graduates, operators and teachers, a standard authority upon all surgical topics, and a work which it will be a pleasure as well as a profit to consult.

Nursing in the Acute Infectious Fevers. By GEORGE E. PAUL, M.D., Assistant Visiting Physician and Adjunct Radiographer to the Samaritan Hospital at Troy, N. Y. Illustrated. Pp. 200. Philadelphia and London: W. B. Saunders Company. 1906.

Dr. Paul has written a book primarily for nurses which has of late not always been accomplished in spite of professed intention on the part of the author. We have frequently found occasion to criticise books for nurses on the ground that they were in reality books for students of medicine. Dr. Paul has avoided this defect in great measure. Although giving a brief description of the symptomatology of a disease, his essential object is to tell the nurse how to treat the conditions which the disease produces. The scope of the book is limited to fever and its treatment. Fever is, therefore, discussed in general, together with appropriate diets and sick-room hygiene. This section is followed by a description of the individual febrile disorders, and finally certain chemical and bacteriological knowledge is inserted which an experienced nurse might make of practical value.

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AMATEUR OPERATING.

Last year a Boston surgeon had occasion to operate on a simple case of cystic goitre in a neighboring country town. On his arriving, with his assistants, at the patient's house, his local consultant, an admirable general practitioner, informed him that he should like to assist at the wound. The surgeon allowed this, with some misgiving. The operation was done with considerable difficulty owing to the inexpertness of the strange assistant, and three days later the patient developed a marked sepsis. Eventually he recovered, but after a tedious convalescence. This familiar story illustrates a number of facts which we place seriously before the profession, — before surgeons as well as before general practitioners. In the high technical development of present-day operating it is becoming increasingly apparent that special training on the part of assistants is essential for satisfactory results. The skilled surgical assistant of to-day is a product of long, special training, and skilled surgical assistance is demanded by modern surgery. We have no intention of asserting that under special circumstances, in remote districts or in emergencies, it may not be proper and necessary for any man not especially trained to be called upon to assist at or to perform capital operations even, but such circumstances should be rare near any great surgical center. The average general practitioner, with his press of work and his lack of time and opportunity for special study, cannot be expected properly to take part in the conduct of serious modern surgical operations. It is not that he may not be familiar with the theory of operating and have a fair general knowledge of technique, but no amount of theory can make good a lack of practice, and the community has a right to expect and demand competent work when such special procedures are called for. The plea of poverty on the part of patients cannot excuse the furnishing of inexpert service. The poorest patient generally can be sent to a well equipped hospital, and when this is not possible, the service of a proper surgeon can always be secured for little or nothing. Surgeons in large practice are constantly giving their services, and every large city swarms with well-drilled young surgeons who are waiting for practice, and are glad to answer calls of any sort.

There is another side of this question, however, which concerns more particularly the work and reputation of busy operators. In the development of our technique, we have learned that *one* guiding and experienced hand at the operating table is not enough. In the language of sport, good operating is a matter of team play. If you will watch the work of a rapid and skillful surgeon with his two or more familiar assistants, you will be impressed with the interdependence upon each other of all those hands. The assistants seem to know and to anticipate as though by instinct the every move of their chief. Instruments are handled, retractors are placed, sponges are applied, ligatures are tied and sutures are passed with a regularity and quick machine-like precision which implies and demands a long practice of the whole team. Such co-ordination in operating has become a commonplace of good surgery and is demanded by an intelligent community. When it is not demanded it should be given as a matter of course, and any lapse into amateurish, slovenly, or incompetent work by a properly qualified surgeon, owing to his neglect to supply a proper team, should not be tolerated, except when such neglect appears unavoidable. It has come about that competent and perfected team-work is regarded as much a part of finished surgery to-day as is the essential, commonplace routine of asepsis and good nursing.

We are led to make these remarks because of two lamentable conventions inherent in the medical community. One convention, maintained often by the general practitioner, is that he has a right to take a hand in the operation upon his own patient. Another convention inheres in the fear of surgeons that they may slight or offend their medical consultants. Such conventions were proper and inevitable ten or fifteen years ago when new operations were being developed and matters of technique were experimental; but within the last decade surgery has been employed

in perfecting operations and the technique of operating. Neither general practitioners nor surgeons should be bound to-day by conventions which must inevitably jeopardize the health and lives of patients and damage seriously the success and the reputation of surgeons.

MODERN PYSCHOLOGY.

PSYCHOLOGY is concerned with consciousness, just as the study of anatomy has to do with the material and tangible organism. The former is therefore a branch of science well entitled to the physician's consideration. It is not now, although its name would imply as much, given up exclusively to metaphysical speculation, to philosophic inquiry concerning the nature of the soul, the future life, spiritual states and the like. These matters are of very legitimate interest, an interest lying, however, rather in the department of *belles-lettres;* they have but an indirect and not an essential relation to modern psychology.

Psychology in the present-day sense had its origin in the work of Weber and Fechner in the first half of the last century; but it had no independent standing as a science until Wundt, in 1878, established his laboratory in Leipzic, where so many "experimentalists," both European and American, have been trained. Presently Müller, Martius and Ebbinghaus followed his example in Göttingen, Bonn and Berlin, respectively; within fifteen years no less than sixteen experimental laboratories were established in America, all directed by Americans, except that at Harvard, to which Münsterberg came from Germany. And here it was that William James prepared his authoritative treatise. Psychology has now developed to the extent that it is in its turn divided into branches — or shall we call them distinct sciences? There are those psychologists who devote themselves exclusively to work upon the anatomy, histology and physiology of the brain, the organ by means of which mind manifests itself; these are the physiological psychologists, who occupy themselves with the study of the correspondence between psychic processes and functions of the brain. The method here is primarily objective, which is, indeed, the method generally pursued in modern psychology.

The "experimental psychologists" made up a very large percentage of the members of the American Psychological Association, which is now happily affiliated with the American Association for the Advancement of Science; and at the recent meeting of the greater organization in New York City made an excellent exhibition of the newer methods employed and of the results achieved in many laboratories throughout our country.

The experimentalists get their data originally from the self-conscious subject. They seek to correct the irregularities and errors of individual observation by objective tests. They are not satisfied with single observations; their investigations are concerned with the "group," and so their work is largely statistical. They eliminate, so far as possible, the personal equation by testing these data through the use of accurate instruments. They consider varieties of sex, age and race; they compare the psychic processes of man with those of the lower animals. They deal with a very wide range of problems, as may be judged from the subjects discussed at their recent meetings — language, esthetics, religion; the differential perception of colors in the spectrum; geometrical illusions; the influence of rhythm on the circulation; the influence of tea and of hashish on psychic processes; the psychology of the telegraph operator; respiration in relation to attention; the development of voluntary motion in the child; the mental faculty and sensation measurements in school children and university students; variations in the nests of a spider; measurements of the variability of instinct; the psychology of the ant queen; the sense and intelligence of the Japanese dancing mouse.

We must confess that thus far the fruits of the modern psychology have not been proportionate to the wide range of subjects chosen and the zeal displayed in their investigation; it would seem now to remain for some scientific geniuses to educe important truths from the vast mass of statistical and experimental material which has been accumulated. But we must be patient; modern psychology is still a very youthful science, and geniuses are very rare, painfully rare.

THE TREATMENT OF CANCER WITH TRYPANROTH.

SOMETHING has recently been said relative to the use of trypanroth in cancer, a name which designates a coloring matter belonging to the benzopurpuric series, and which until recently has been used only for staining anatomical preparations. In a recent article, Dr. Schoull, of Tunis, states that trypanroth has been successfully employed in the treatment of trypanosomiasis by Laveran, Ehrlich and Shiga, and it has again

been experimented with by Horand and Jaboulay of Lyons in the treatment of cancer, and on account of the apparently favorable results obtained Schoull and Vullien have continued researches along these lines.

Trypanroth is met with in the form of an odorless, tasteless, brownish-red powder, soluble in water. Horand and Jaboulay, in the first place, gave it in the form of cachets and afterwards in hypodermic injections, using as a vehicle normal salt solution in the proportion of 50 cg. of trypanroth dissolved in 40 cc. of salt solution. Given by mouth no appreciable result appears to have been obtained, but the same cannot be said when the drug is introduced subcutaneously. After a varying lapse of time the integuments take on a rose color, occasionally reaching a bright red. This coloring, which ordinarily arises within a few hours and also stains the urine, is one of the inconveniences of the method.

The injections of trypanroth are rather painful and even when slowly injected the solution gives rise to a very acute pain, extending quite a distance beyond the point of injection. The pain subsides in about an hour, but may return somewhat violently ten or twelve hours later. One may safely add 3 or 4 cg. of cocaine. The injections are given in the external aspect of the thigh or in the hypochondriac region, the liquid always being tepid. In spite of every aseptic precaution and sterilization of the injection fluid local inflammatory reactions have been occasionally met with. In the majority of cases the injection was followed by a rise in temperature, the mercury rising to 100° to 102° within from six to eight hours. This rise in temperature does not appear to have any relation to the nature of the affection under treatment, and subsides without any treatment in from twelve to thirty-six hours. A slight oliguria has sometimes been noted.

The injection should be given every two or three days, but in some instances only every eight or ten days. However this may be, from four to six generally are sufficient to obtain a result which is frequently said to be astonishing. One should be guided by the reaction presented by the patient and the results obtained. In two cases of carcinoma of the stomach, Schoull and Vullien obtained in one case a complete disappearance of the tumor, which had been distinctly detected, and a great improvement in the general condition after four injections had been given. In the other case the improvement of the general phenomena was remarkable; the drug seemed to act quickly, but its action appeared to diminish very rapidly. There was no accident other than a marked rose color of the integuments. In another instance, the patient was a lad nineteen years of age presenting a very marked involvement of the lymphatic glands which had appeared five months previously and presented an enormous hypertrophy of the lymph-nodes in the neck and tonsils. His condition was extremely serious and appeared hopeless. However, in ten days he received five injections, each containing 50 cg. of trypanroth dissolved in 40 cc. of salt solution, and after the second injection the tumors diminished in size so rapidly that after two more injections given during the ten days which followed the first series, the tumors in the neck, which originally were the size of a closed fist, were no larger than a walnut. The other lymphatic tumors had almost disappeared, the spleen had returned to its normal size, while the patient's general health was almost perfect.

Such results are interesting, and it is, of course, possible that we have here a new and curious drug with which to experiment. At any rate, in apparently hopeless cases it is sometimes justifiable to try methods devoid of altogether satisfactory credentials. The future alone will demonstrate what may be accomplished, and results so few in number must be received with much skepticism; nevertheless, let no man say that hope shall not spring eternal.

ADJOURNMENT OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The American Association for the Advancement of Science adjourned on Jan. 1, after voting to hold its next annual meeting in Chicago. Among the work of the closing session were the establishment of an additional section on Scientific Education, which was proposed by Prof. E. G. Dexter of the University of Illinois, and the adoption of a memorial to Congress, to be presented by a committee of five. In this, attention is called to the increasing seriousness of the results of the rapid and reckless destruction of forests about the headwaters of important interstate rivers, and the House of Representatives is urged to pass the bill now before it providing for the establishment of national forest reserves in the White Mountains and Southern Appalachians. The meeting was the most successful and largely attended in the

history of the Association, and in his address at its close the president, Dr. Welch, expresed the opinion that the work presented had been of an exceptionally high quality, and that a marked increase had been evinced in the general interest in scientific knowledge.

MEDICAL NOTES.

TYPHOID FEVER IN SCRANTON, PENN. — Recent reports from Scranton, Penn., show that the epidemic of typhoid fever in that city has reached somewhat alarming proportions. Recently a total of a thousand cases have been reported, with seventy deaths. There is need of nurses, not only because of the increasing number of cases, but also because some of the nurses are themselves ill.

THE TREATMENT OF SCIATICA. — The prize essay on this subject awarded by the New York *Medical Journal* was won by Dr. E. S. McKee, Cincinnati. The essay appeared in the *Journal* of Dec. 29 ult., of which the following is a brief abstract: "Rheumatic cases are generally benefited by the salicylates, syphilitic cases by the iodides and gouty cases by colchicum and the salines. One of the best combinations of drugs for the acute stage is the following, which should be preceded by calomel and the salines: ℞. Aspirini (acetyl salicylic acid), dr. L, or 4.00 gm.; phenacetini (acetphenitidin), gr. L or 3.33 gm.; quininæ salicylatis, gr. xx, or 1.33 gm.; codeinæ sulphatis, gr. iiss to v, or 0.15 to 0.33 gm. M. Fiant capsulæ No. x. S. Take one every two or three hours. Hypodermics, sterilized air injections, rest, cure, massage, electricity and the surgical treatment were discussed. Great stress was laid on having a thorough knowledge of the individual patient on hand. If he has failed in a cure he has failed somewhere in his study of the case and something has been overlooked. An exact diagnosis of the condition is one of the first and last means of cure. *Qui bene diagnoscit, bene curabit.*

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Jan. 9, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 56, scarlatina 46, typhoid fever 5, measles 24, tuberculosis 43, smallpox 0.

The death-rate of the reported deaths for the week ending Jan. 9, 1907, was 22.51.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, Jan. 5, 1907, was 273, against 234 the corresponding week of last year, showing an increase of 39 deaths and making the death-rate for the week 23.64. Of this number 132 were males and 141 were females; 269 were white and 4 colored; 160 were born in the United States, 103 in foreign countries and 10 unknown; 70 were of American parentage, 168 of foreign parentage and 35 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 54 cases and 8 deaths; scarlatina, 16 cases and 2 deaths; typhoid fever, 9 cases and 3 deaths; measles, 22 cases and 0 deaths; tuberculosis, 46 cases and 24 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 48, whooping cough 1, heart disease 33, bronchitis 6 and marasmus 3. There were 20 deaths from violent causes. The number of children who died under one year was 45; the number under five years 56. The number of persons who died over sixty years of age was 71. The deaths in public institutions were 76.

There was 1 case of cerebrospinal meningitis reported during the week. No deaths.

CREMATION IN MASSACHUSETTS. — The Massachusetts Cremation Society reports for the year past the largest number of cremations of any single year hitherto. There were 238, eight more than the previous highest number in 1899. The Rev. Paul Revere Frothingham, president of the society, spoke at the annual meeting, which has just been held.

A VERDICT FOR JOSTLING. — A decision of interest and importance has recently been rendered by the full bench of the Massachusetts Supreme Court. Suit was brought against a suburban railway company for an injury sustained in one of the subway stations because of being thrown down through the jostling and pushing of the crowd. The higher court maintains that the railroad company is liable under these conditions and, therefore, sustains the lower court in its verdict of a judgment for the plaintiff.

INCREASED AUTHORITY GIVEN DR. AUSTIN J. PETERS. — In view of the prevalence of rabies in certain portions of Massachusetts, Dr. Austin J. Peters, of the State Cattle Bureau, has been given increased authority in relation to the muzzling of dogs. This will no doubt have a salutary effect upon the people at large in allaying anxiety

and upon the spread of the disease through the adoption of more vigorous prophylactic measures.

Brigham Annuities. — Under the will of the late Robert B. Brigham the annual payment of annuities to various organizations has just been made. Among these the Massachusetts Eye and Ear Infirmary, the Channing Home for Consumptive Women, the Children's Hospital, the Massachusetts Infant Asylum, the Boston Home for Incurables, Perkins Institution for the Blind, New England Hospital for Women and Children and the Boston Lying-In Hospital receive one thousand dollars each.

Tuberculosis in Brockton, Mass. — An active campaign is to be begun in Brockton, Mass., against the spread of tuberculosis. Ex-Governor Douglas has contributed one thousand dollars to the cause, and an organization has been formed which it is hoped will develop into a definite means of combating the disease. An effort will be made to provide the treatment now demanded, and especial care will be taken in the treatment of tuberculosis at the homes of the patients.

Dr. Frederick L. Hills, Superintendent of Rutland, Mass., Sanatorium. — Dr. Frederick L. Hills, of Concord, N. H., has been appointed medical resident superintendent of the Rutland Sanatorium for tuberculosis. As a result of the hearing held before the Governor's Council about a year ago, it was voted that hereafter the position of visiting physician for this institution be given up and that the responsibility of the cases devolve wholly upon a resident medical superintendent. Dr. E. O. Otis recently resigned his position as visiting physician to the sanatorium, and the appointment of Dr. Hills has met with very general approval. Dr. Hills has had wide experience in administrative work at various institutions and is regarded as a most efficient man to carry on and develop the important work for which the Rutland institution stands.

Stillman Infirmary. — The Stillman Infirmary in Cambridge, connected with Harvard College, is each year proving of great service to those to whom it ministers. This plan to provide adequate medical treatment for students at the university, who may for various reasons not be able to be treated at their own homes, has proved a decided success, and there is rarely a time when there is not a considerable number of patients at the hospital. For example, during the month of December just passed, 36 were treated, the largest number at any one time being 16. During the academic year of 1905-6, 432 patients were admitted, which was a large increase over the preceding years. Naturally most of these persons are suffering from minor ailments, and therefore remain at the infirmary but a short time. Last year a new ward for contagious diseases was opened, but fortunately it has been called into requisition only twice during the year. The staff of the infirmary at present consists of a matron and five nurses, but this number, of course, may be increased to meet emergencies. It is a noticeable feature of the work of the infirmary that the general ward is being used rather than the private rooms.

NEW YORK.

Memorial Meeting of the Late Dr. Mary Putnam Jacobi. — A memorial meeting in honor of the late Dr. Mary Putnam Jacobi, was held at the Academy of Medicine on Jan. 4, under the auspices of the Woman's Medical Association of New York, and a movement was inaugurated to raise $25,000 for the establishment, as a tribute to her memory, of a post-graduate course for women physicians. Among those who spoke on this occasion were Drs. William Osler and Charles L. Dana.

A Practical Study of Posture. — At a meeting of the society of the Alumni of Bellevue Hospital held on Jan. 2, a paper of great interest and practical value to the general practitioner was read by Dr. Reginald H. Sayre, on "A Study of Posture with Reference to the Early Diagnosis of Bone Disease." It was profusely illustrated by lantern slides.

A New Jewish Hospital. — Through the efforts of the Federation of Galician and Bucovinean Jews in America a new hospital is shortly to be established on the lower east side of the city. Arrangements have been completed for the purchase, for $50,000, of two four-story brick dwelling-houses on Second Street, and in these, after suitable alterations have been made, accommodations for between thirty and forty indoor patients will be provided. The new institution is to be known as the Mount Merijah Hospital.

Tuberculosis Exhibition. — The committee on the prevention of tuberculosis of the Charity Organization Society is holding a two-weeks "tuberculosis exhibition" at the 23d Street branch of the Young Men's Christian Association, and on certain evenings free lectures illustrated with stereopticon views are being given by Health Commissioner Darlington and

Drs. S. A. Knopf, Charlton Wallace, Livingston Farrand and Linsly R. Williams.

NEW BUILDING FOR BETH ISRAEL HOSPITAL. — The seventeenth annual meeting of the directors of the Beth Israel Hospital was held on Dec. 26. The president announced that six checks, aggregating $27,500, had been received for the erection of a new building, and that during the year $49,000 in addition to this amount had been subscribed for the same purpose. The annual report showed that 1,535 free patients were treated, out of a total of 2,377. More than 1,000 applicants had to be refused admission because of lack of facilities. The total expenses of the year were $114,000, of which $30,000 was spent for improvements.

ST. BARTHOLOMEW'S PARISH HOUSE AND CLINIC. — The year book of St. Bartholomew's Protestant Episcopal Church, just issued, shows that during the year ending Nov. 1 the large sum of $224,493 was raised; more than one third of this amount was expended in the work conducted at St. Bartholomew's Parish House and Clinic on East 42d Street; $17,725 was paid for the maintenance of the clinic, the various departments of which are regularly attended by a large corps of physicians and surgeons; among the 249 salaried workers in the parish are six nurses.

EXPERT FEES. — On the evening of Dec. 28, the New York Chemical Society entertained the visiting chemists of the association with a banquet at the Waldorf-Astoria. Among the speakers was Controller Herman A. Metz, who is himself a chemist by profession, and he took occasion to say in the course of his remarks that he thought the city was paying too much to experts, chemical and otherwise. Thus he had just had to pay out $43,000 for experts in the Patrick case. Lawyers, however, got more out of his office than any other class of people. Mr. Innis, who was a candidate for mayor at the last municipal election, served as an expert for three weeks, and sent in a bill for $12,000; while if he had been elected mayor, he would have had to serve the city for a whole year for only $15,000.

DR. JOHN A. WYETH, PRESIDENT OF NEW YORK ACADEMY OF MEDICINE. — At the annual meeting of the New York Academy of Medicine, held Jan. 3, the president-elect, Dr. John A. Wyeth, assumed the duties of his position. The retiring president, Dr. Charles L. Dana, delivered an address on the history, work and needs of the Academy, and in it he expressed the opinion that $200,000 was required for the purpose of enlarging the library, and $200,000 more for a monthly publication of the work of the Academy.

CHILD LABOR. — In his first message to the Legislature, Governor Hughes recommends that careful consideration be paid to the important subject of child labor. Children under sixteen, he says, should have an eight-hour day. Such a provision would not only furnish protection from excessive strain, but would also aid the administrative officers in their enforcement of the law. He also recommends that in order to protect children against dangerous employments there should be a more precise prohibition, specifying the occupations in which children under sixteen should not be employed, since general prohibitions as to such matters are apt to be found inoperative. With reference to pure food laws the Governor states that as at present the legislation regarding adulterations and impurities is partly found in the Public Health law and partly in the Agricultural law; it is desirable that the laws should be codified and presented in a single comprehensive statute, suitably defining the duties of the department which may be charged with its execution. He thinks that frequent bulletins or reports should be issued, serving as a vehicle of useful information and also as an indication of the effectiveness of the State's supervision. Furthermore, as Congress has recently legislated upon the general subject, with reference to inter-state commerce, that efforts should be made to promote harmony between the work of the Federal and state authorities.

MORTALITY STATISTICS. — The weekly reports of the Health Department show that the mortality in the city in the month of December represented an annual death-rate of 17.81, as against 16.61 in November and 17.35 in December, 1905. The corrected death-rate, excluding non-residents and infants under one week old, was 16.64. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 4.25 in November to 6.25 in December; the weekly average from scarlet fever, from 4.25 to 11; from whooping cough, from 5.75 to 10; from diphtheria and croup, from 37.5 to 39; from influenza, from 3.25 to 8.75; from pulmonary tuberculosis, from 164.75 to 171; from acute bronchitis, from 20.25 to 30; from pneumonia, from 112.5 to 142.5; from bronchopneumonia, from 91.25 to 98.5; from apoplexy, congestion and softening of the brain, from 56 to 60.5; from organic heart diseases, from 113

to 125.25; from Bright's disease and nephritis, from 114.75 to 125.75; and from malarial diseases from 1 to 2. Among the few diseases which showed a diminished mortality were the following: The weekly average of deaths from typhoid fever deceased from 18.5 to 13.25; from diarrheal diseases, from 43.5 to 36.75; from diarrheals under five years, from 37.75 to 29.25; and from cirrhosis of the liver, from 20.5 to 18.75.

During the year 1906, the number of births reported in the city was 111,772, an increase over 1905 of 8,000. This is the highest number of births ever recorded by the Health Department. The number of deaths was 76,206, an increase of 2,492. This increase in mortality is naturally accounted for by the increase in population. There was an increase in the deaths from pneumonia (including bronchopneumonia) of 1,084, and this is attributed largely to the prevalence of measles, in the deaths from which there was an increase of 625. Among the other diseases in which there was an augmented mortality were the following: Organic heart diseases, increase in deaths over 1905, 424; tuberculosis, increase, 420; diphtheria and croup, increase, 343; Bright's disease and nephritis, increase, 171; cancer, increase, 130; scarlet fever, increase, 107. Among the affections in which there was a decrease in the number of deaths were typhoid fever, malarial diseases, whooping cough, cerebro-spinal meningitis, influenza, bronchitis and gastro-intestinal troubles in young children.

Current Literature.

The Journal of the American Medical Association. Dec. 22, 1906.

1. *Freeman, L. *Treatment of Tuberculosis of the Kidney and Bladder.*
2. Ryerson, G. S. *Keratosis Obturans.*
3. *Welty, C. F. *Acute and Chronic Suppuration of the Ear and Nose the Direct Cause of Facial Erysipelas.*
4. *Baldwin, W. H. *Influence of a Tuberculosis Sanatorium on the Value of Surrounding Property.*
5. Hatcher, R. A. *The Pharmacology of Digitalis.*
6. Wood, H. C., Jr. *The Pharmacology of Veratrum.*
7. *Noble, C. P. *Fibroid Tumors of the Uterus.* (Concluded.)
8. Weiss, L. *The Prostitution Problem.*
9. Chassaignac, C. *Etiology of the Social Evil.*
10. Harwood, W. E. *A Practical Lesson in Réglementation.*
11. *Donoghue, F. D. *Retroperitoneal Cysts Developing from the Wolffian Body.*
12. *Anders, J. M., and Morgan, A. C. *Tetanus Neonatorum.*

1. Freeman remarks that the old notion that renal tuberculosis was secondary to that of the bladder is now exploded and its hematogenous origin is very generally recognized. This view, supported by clinical experience, is also supported by the experimental findings of Baumgarten that tuberculous infection in the genito-urinary system follows the flow of the secretions, from the testicles to the prostate and from the kidneys to the bladder. Renal tuberculosis is generally at first unilateral, and in spite of the fact that it may occasionally be latent for longer or shorter periods, its usual course is progressive, and experience has demonstrated that early nephrectomy, before involvement of the bladder occurs, is the best treatment for unilateral renal tuberculosis, provided the general condition of the patient permits. The existence of tuberculosis elsewhere, if not too far advanced, is not a contra-indication; even bad cases of vesical tuberculosis may improve or recover after operation, as has frequently occurred in Freeman's experience. It should be remembered, too, that the tuberculous disease of the bladder is often only apparent, as a reflex from the kidney or the result of irritating discharges. The one essential to be kept in view is that the other kidney must be sound, both as to function and tuberculosis, and an occasional exploratory lumbar incision may be required, though as a rule this is ascertainable by other well-known methods. The weight of authority is against partial nephrectomy, and nephrotomy is never indicated except to relieve suffering in case nephrectomy is impossible. It cannot cure, and almost always leaves a troublesome urinary sinus. The removal of the ureter is not ordinarily indicated. If sinuses result they usually heal after nephrectomy. Fourteen cases are reported and discussed.

3. Welty accounts for the special frequency of erysipelas in the face by its nearness to the source of infection in the nose or ear. The pus secretion produces an abrasion of the skin or mucosa and inoculation follows. This may also be conveyed by the handkerchief, or more frequently, he thinks, by the finger. The reason for the so frequent recurrence of facial erysipelas is, he says, because the infection is always present and is practically never eliminated without operation. When streptococci can be determined in the secretion of the ear or nose it should be considered as an established fact that the erysipelas is dependent on them. The reason why 82% of facial erysipelas starts from the angle of the nose is thus explained. The reason that erysipelas does not occur in every case in which streptococci exist in the secretions is best given by assuming immunity or modified virulence: not every case of exposure to other infections is followed by the outbreak of the disease. These opinions are supported by the results of the examination of some 60 cases of erysipelas in the City and County hospitals at San Francisco. Idiopathic facial erysipelas, Welty says, is a misnomer.

4. Baldwin has studied the effect of tuberculosis sanatoria upon the value of property in the neighborhood by correspondence with 59 of the principal sanatoria of this country. In 58% the adjoining values have increased since the establishment of the institutions, in 17% there has been no change, and in 7% a depreciation has occurred. In 19 of the 59 opposition to the establishment of these institutions on the part of the community was encountered, this being the case more frequently in recent years. Such opposition should be overcome by bringing the public to understand the fact that there is absolutely no danger in a well conducted sanatorium, and that such an institution is, on the contrary, a direct benefit to the community.

7. Noble has analyzed the complications and their results in over 2,000 cases of fibroid of the uterus. These complications are tabulated according to the frequency of their occurrence. Cancer of the body of the uterus is more frequent in women with fibroids than in other women. Sarcoma also occurs. Necrosis and other degenerations are frequent. Anemia and pressure effects are also mentioned. Spontaneous disappearance of the tumor after pregnancy or after the menopause is rare. Fibroids are a frequent cause of sterility and where pregnancy occurs often seriously complicate it. The mortality from neglected fibroids Noble estimates as 30%, whereas the operative mortality is 3%. Thus even in the absence of symptoms expectant treatment is to be avoided.

11. Donoghue has collected a number of cases of retroperitoneal cysts, believed to have developed from the embryonic Wolffian body, including cases which he believes to belong to this class but which were reported by other authors as pancreatic cysts. Cysts of the Wolffian body, he maintains, are not uncommon in women, whereas true cysts of the pancreas are rare, especially in women. Cysts of the Wolffian body may also be mistaken for hydronephrosis or for ovarian cysts.

12. Anders and Morgan have gathered statistics including 1,307 cases of tetanus neonatorum in the United States. The disease is especially frequent among the negroes of the southern states, and occurs largely in local epidemics. For its prevention asepsis in the care of the umbilical cord should be insisted upon. Cases attended by midwives are especially liable to tetanus; state boards of health should take steps to require registration of midwives and see to it that proper asepsis is maintained.

THE LANCET.

DEC. 15, 1906.

1. OWEN, E. *Cancer, its Treatment by Modern Methods.*
2. *WARRINGTON, W. B., JONES, R. *Some Observations on Paralyses of the Brachial Plexus.*
3. GLAISTER, J. *Water Gas, Carburetted Water Gas, and Carbon Monoxide Poisoning.*
4. *BAILEY, L. D. *Some Cases of Acute Leukemia admitted into St. George's Hospital between 1895 and 1905.*
5. SQUIRE, M. F. *A Case of Sprue Treated by Strawberries.*

2. In this paper palsies of the upper extremity due to indirect violence either at birth or in adults, and the rarer cases of neuritis are considered. The writers have had 30 cases with 11 complete recoveries, a larger percentage than usual. Cases due to spontaneous neuritis are rare; 4 of their cases were of this type with 3 recoveries. The pathology of the lesion may be one of two types; (1) immediate tearing and rupturing of nerve sheath and nerve fibers; (2) a late result due to cicatricial contraction. From the symptoms it is practically impossible to make any accurate statement as to the extent of the lesion, though the prognosis of a partial lesion is better than that of a complete one. Absence of sensory disturbance is generally the rule although exactly why this is so, is hard to tell. The prognosis in those cases showing pupillary disturbances is very bad; it generally means an intravertebral lesion. Birth palsies give worse results than corresponding ones in adults. In adults if spontaneous recovery is to take place, signs of it should come inside seven months; in birth palsies such improvement may be longer delayed. Mechanical treatment is important; the muscles should be kept absolutely relaxed even if operative interference is needed to do this. Nerve anastomosis is of service especially in children, and nerve transplantation in other cases. Massage and mechano-therapy after operation is important.

4. Bailey reports in detail 5 cases of acute leukemia. The various symptoms that these patients first noticed is of interest. The first had been short of breath and weak for some time, and had had large hemorrhages from lungs or stomach previous to admission; the second complained of weakness; the third, weakness and pain in the back; the fourth came in on account of sore mouth and throat, while the last complained of great loss of weight and shortness of breath.

BRITISH MEDICAL JOURNAL.

DEC. 15, 1906.

1. OWEN, E. *Cancer, Its Treatment by Modern Methods.*
2. *BOND, C. J. *A Discussion on Acute Septic Peritonitis.*
3. BRUCE, H. A. *Appendicitis: Some Points in Diagnosis and Treatment based on over 600 Operations.*
4. *TURNER, G. G. *Intestinal Obstruction in Association with the Vermiform Appendix.*
5. MCMURRICH, J. P. *The Valves of the Iliac Vein.*
6. HUBER, G. C. *The Arteriolæ Rectæ of the Mammalian Kidney.*
7. HUBER, G. C. *The Morphology of the Uriniferous Tubules of the Reptilian Kidney.*
8. PATERSON, A. M. *The Mechanical Supports of the Pelvic Viscera.*
9. WATERSTON, D. *Preliminary Communication on Some Features of the Brain and Skull in Mongolism.*
10. JENKINS, G. J. *The Morphology of the Hip-Joint.*
11. STREETER, G. L. *Experiments on the Developing Ear Vesicle of the Tadpole.*
12. BARDEEN, C. B. *The Development of Ova of the Toad, Fertilized by Spermatozoa which have been exposed to the Rontgen Rays.*
13. HARRISON, R. G. *The Development of the Nerve Elements in Vertebrates.*
14. LEE, T. G. *The Early Development of Gomys Bursarius.*
15. SHAMBAUGH, C. E. *The Development of the Stria Vascularis.*
16. HARVEY, B. C. H. *The Chromaffine Characters of Certain Parietal Cells of the Stomach.*
17. GOETTSCH, E., and HARVEY, B. C. H. *An Unusual Peritoneal Anomaly Simulating Retroperitoneal Hernia.*
18. GLADSTONE, R. J. *A Symelian Monster* (Sympus dipus).
19. HARVEY, B. C. H. *A Case of Innervation of the Nervus Lateralis Oculi, by the Nervus Oculomotorius, with Absence of the Nervus Abducens.*
20. *HELME, T. A *A Discussion on the Appendix Vermiformis in Relation to Pelvic Inflammation.*
21. *CAMERON, M. *Antistreptococcus Serum in Puerperal Fever.*
22. *VIPOND, A. E. *The Early Diagnosis of Infectious Diseases by the Recognition of the General Involvement of the Lymphatic Glandular System.*
23. ATKINSON, J. M. *Plague Procedure in Hong Kong.*
24. DIXON, S. G. *The Prevention of Tuberculosis.*

2. Bond lays stress on the diaphragmatic peritoneum as the most powerful seat of the resisting forces of the abdomen against bacterial invasion, as well as the place where most absorption takes place; the peritoneum covering the small intestine is next in importance. The safety of the patient depends on the integrity of the endothelial and phagocytic defence. He dwells on the bacteriology of acute septic peritonitis, especially of the so-called idiopathic form, that due to the bacillus coli and to the streptococcus. He speaks of the greatly lessened resistence of the intestinal walls to the transmigration of bacteria when distended by gas and feces. He does not believe in morphine, but thinks that saline cathartics are a valuable adjunct; the serum treatment is still in its infancy but much is to be expected of it later. In operating, speed and delicacy of handling, as shown by Cannon and Murphy are of supreme importance.

4. Turner classifies cases of intestinal obstruction in association with the appendix as follows: (1) Obstruction due to appendicitis or its results, during the acute attack, during convalescence or after operation, or in recurrent cases, and (2) obstruction produced by the appendix, but without appendicitis. He has had under observation examples of all these classes. he believes that appendicitis is as frequent a cause of obstruction as is tuberculosis. The two chief causes of obstruction are adhesions and bands, the former leading to mechanical obstruction, the latter to strangulation. He cites in detail numerous illustrative cases. Obstruction due to the appendix but without appendicitis is less common than with or after appendicitis, but is by no means rare. The treatment is surgical in every case and success depends largely on making an early diagnosis.

20. The appendix in woman has an importance which in man it does not possess, in that disease of this structure may seriously influence the functions of the generative organs. The normal position of the appendix, pointing downward, puts it in close contact with the generative organs. It is claimed by some that there is a definite blood and lymphatic connection between the appendix and the right ovary and tube; with this opinion the writer does not concur; when the seat of disease is in the appendix, inflammation of the tubes often follows from direct contact, and vice versa, when the tubes are primarily affected, the appendix is often involved, directly or indirectly, by a passive congestion. In many cases after a pelvic operation there is a post-operative inflammation of the appendix, or again there may be disease of both organs occurring simultaneously. Appendicitis occurring during pregnancy or puerperium is no contra-indication to immediate operation. He does not think that the systematic removal of the appendix during laparotomy for pelvic disease in the absence of evident disease is justifiable.

21. Cameron describes two cases of puerperal sepsis, which he believes were saved solely by the use of antistreptococcus serum.

22. Vipond believes that enlargement of the lymph-nodes is an important early sign in diagnosis of any acute infectious disease in children, especially in measles, the enlargement coming on several days before Koplik's spots appear. He gives the characteristics of this enlargement in different diseases.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 50. DEC. 13, 1906.

1. *VON EISELSBERG. *The Treatment of Acutely Perforated Gastric and Duodenal Ulcers.*
2. *PAYR, E. *The Treatment of Tuberculosis of the Atlas.*
3. VON BERGMAN, A. *Intestinal Obstruction as a Late Result of Appendicitis.*
4. RIEDEL. *Suture of Fracture of the Patella with Catgut.*
5. SPRENGEL. *The Treatment of Gunshot Wounds.*
6. *POZZI, S. *Recent Experience in the Suture of the Completely Divided Ureter.*
7. DURANTE, F. *The Surgery of the Arabs.*

1. Eiselsberg reports the details of 12 cases of perforated gastric or duodenal ulcer operated on by him. Five of the cases recovered, seven died. Of the first group 2 were operated within twelve hours of the perforation; in 2 it was twenty-four hours old, and in 1, two days old. Of the fatal results, 2 were operated on the first day, 3 on the second, and 1 each on the third and fourth days. The cavity was always thoroughly washed with salt solution after suture of the perforation. Eiselsberg advocates strongly the performance of a rapid jejunostomy with a catheter, after the method of Witzel, at the time of the original operation, claiming that the patient can thus be easily and best nourished during the first days, when feeding by mouth is impossible.

2. Payr has contributed a most interesting paper on the surgical treatment of tuberculosis involving the atlas. The disease was reached from the rear, after section of the neck muscles and ligature of the vertebral artery on one side. Though his case made a complete recovery, the operator feels that cases in which the disease can be localized early and thus successfully treated will be rare. The indications for and against such radical treatment of the condition are the following:

(1) Any involvement of the cord and its membranes or of the brain is an absolute contra-indication; (2) involvement of the odontoid process makes any operative treatment impossible; (3) the vertebral disease must be in an early stage and confined to one side; (4) communication of the disease-focus with the pharynx (pharyngeal abscess), thus causing a mixed infection, is to be regarded as a dangerous complication; (5) whenever possible, the location of the disease must be accurately defined by x-ray, and the symptoms should also be such as to make it possible to locate the trouble; the presence of a cold abscess is no contra-indication to operation; (6) there should be no marked tubercular involvement of any other region or organ.

6. Pozzi reports the successful suture of a ureter by a method of invagination and turning in of the ends. For the details of the method the reader is referred to the original article.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 50. DEC. 11, 1906.

1. *SELTER. *Bacteriological Investigations with Autan, a New Formalin Disinfectant.*
2. HENKING, R. *The Use of Novocain in Lumbar Anesthesia.*
3. DIETZE, M. *The Technic of Local Anesthesia, with Especial Reference to the Combined Use of Novocain and Suprarenin.*
4. STEIM, O. *Experience with the use of Novocain.*
5. *LEVY and KAYSER. *Bacteriological Findings at the Autopsy of a Carrier of Typhoid Bacilli (Typhus bazillenträger).*
6. *TOMARKIN, E. *The Danger of the Spreading of Disease by the Telephone, and Prophylaxis.*
7. VIERORDT, O. *The Use of Physical Methods of Treatment in General Practice.* (Continued article.)
8. *BURKHARDT, L. *Symptoms referable to the Left Side of the Abdomen in Appendicitis.*
9. HORNUNG. *Electrical Treatment of Cardiac Diseases.*
10. VOLLERT. *A New Principle in the Operative Treatment of Glaucoma (Iridencleisis Antiglaucomatosa Holth).*
11. SACHS-MÜKE. *An Improved Method of Sedimentation of Sputum.*
12. WEDERHAKE. *Remarks on Suture Material.* (Concluded.)

1. Autan is a powder recommended for the disinfection of rooms, clothing etc., and consists of a mixture of formaldehyde and metallic superoxides. When mixed with water, it gives off immediately large volumes of formalin; its advantages are that it requires no apparatus, nor even that the room be made air-tight. Selter's experiments show that its disinfecting power is very satisfactory and equal to that of any disinfectant now in use.

5. Levy and Kayser report the interesting case of a woman who, two years after an attack of typhoid, was found to have typhoid bacilli constantly in the stools and was probably the source of a hospital epidemic. A year later she died of an acute infection, the nature of which remained uncertain during life. The autopsy showed the presence of typhoid bacilli in enormous numbers in the gall bladder and within a gall stone; the same organisms were also recovered from the spleen and liver. They conclude that the gall bladder was the abiding place of the typhoid bacilli, from which the stools were infected. They regard the terminal disease as an auto-infection with typhoid bacilli, starting from the gall bladder.

6. The danger of contracting disease from telephone transmitters has been much exaggerated, but undoubtedly exists to a limited degree. Tomarkin performed experiments with Simund's telephone disinfector and found it very effective. It consists of tablets containing formalin and aromatic substances. Telephonin, an American patent device for this purpose, was found to be inert.

8. Burkhardt reports 3 cases of appendicitis in which the clinical picture from the first was that of abscess formation in the left iliac fossa. This complication may be due to an abnormal position of the appendix, so that its tip reaches nearly to the middle line, to lymphangitis, or a transmission of infectious material within the peritoneum, or very rarely to transposition of viscera, with the appendix situated in the left iliac fossa.

THERAPIE DER GEGENWART. DECEMBER, 1906.

1. *WESTENHOEFFER, M. *Predisposition in Phthisis in its Relation to Treatment.*
2. *GERONNE and MARCUSE. *The Therapeutic Use of Sajodin.*
3. *LOEWY, A. *Remarks on the Action of Yohimbin.*
4. BLUMENTHAL, A. *The Use of Formamint.*
5. *FELLNER, O. *Shall Pregnancy be interrupted before Operation for Appendicitis?*

1. Westenhoeffer discusses the favorable effect on phthisis of pneumothorax, and of passive hyperemia, with autopsy findings. In the case of a man dying of pyopneumothorax, the corresponding lung showed two cavities with collapsed walls, surrounded by evident signs of healing. The curative influence of pneumothorax is ascribed to three factors, viz.: complete rest of the lung, the prevention of aspiration, and the slowing of the circulation in the affected parts, which hinders the spreading of the process by the lymphatics. In a woman dying from mitral stenosis of six years' standing, lesions of tuberculosis were found in the lungs, with marked tendency to organization; but in spite of the long duration of passive hyperemia, the cure was not yet complete. It would appear, therefore, that passive hyperemia of the lungs exercises a restraining influence on tuberculosis, but not equal to that of pneumothorax. Lastly, Westenhoeffer describes a case of miliary tuberculosis in which, contrary to the usual rule, the tubercles were much more numerous in the lower than in the upper lobe; this was accounted for by the presence of dense adhesions over the lower lobe. The *impairment* of function, he concludes, predisposes to tuberculosis, the *abolition* of function (as in pneumothorax) acts in the opposite direction.

2. Sajodin, introduced by v. Mering and Emil Fischer, is an organic preparation containing 26% iodine. The dose is 1.5 to 6 gm. per day. Géronne and Marcuse find

it equal to potassium iodide in its therapeutic action, and without the toxic effects of the latter; no cases showed acne, coryza or other symptoms of iodism.

3. Loewy describes the remarkable effects obtained with yohimbin in veterinary practice, and recommends a cautious trial of the drug on man. According to Müller's experiments yohimbin increases the reflex irritability of the sacral cord without affecting the general reflex irritability, and causes also an increased blood supply to the abdominal organs (spleen excepted) and external genitals. In cattle and horses it has a marked aphrodisiac action, arousing sexual desire in "frigid" animals of both sexes, inducing potentia coëundi, and also the occurrence of heat in cows who had hitherto shown complete absence of this phenomenon. It is greatly superior to cantharides and other drugs recommended for such purposes.

5. Fellner concludes that by reason of the greater severity of appendicitis among the pregnant, that operation should be performed earlier. The uterus should be emptied previous to the operation for appendicitis only in those cases where the fetus is dead, or pains have already set in.

Fournier's Recent Modification of his Treatment of Syphilis. SAINGERY (*Internat. Clinics*, series 16, no. 3) discusses the value of Fournier's new method. Fournier formerly treated each case of syphilis, except in intervals of rest, for a period of four years. He now advocates energetic treatment for the first two years, then a rest of two years, then two periods of resumed treatment covering respectively the fifth and the seventh or eighth years. The reason for this system is the fact that paresis begins to be frequent in the sixth year, increasing in its occurrence from then until the tenth year. Fournier believes that paresis is of a syphilitic nature, and is therefore trying to prevent it by anti-syphilitic treatment. Saingery, on the other hand, does not believe that paresis is a result of syphilis. He maintains, therefore, that these late periods of treatment are unnecessary. [It is now pretty generally accepted that syphilis is the most important factor in the production of paresis.]

The Irregular Heart, Its Causes and Treatment. ABRAHAMS (*Internat. Clinics*, series 16, no. 3) discusses clinical forms of irregular heart, from the temporary irregularities due to nervous influences, toxic and reflex causes, and personal peculiarity, to those of organic heart disease. Primary irregularity of the heart is always due to the heart's inability to do its work properly, whether from excessive demands upon it, as in arteriosclerosis, or from weakening of the heart itself, as in intoxications, inflammations of the heart, fatty or fibrous degeneration, or old valvular disease. Secondary irregularities occur in diseases of the nervous system, as in meningitis, or of other organs, particularly those of the stomach. In determining whether the cause is in the heart or not the quality of the first sound is the most reliable guide. A point to be remembered is that with organic heart disease may be associated an irregularity that is functional. In prognosis, those cases in which the patient discovers the irregularity before the physician are the most favorable. In treatment, for functional cases, bromides and occasionally veronal or chloralamid are of service. In organic cases the best remedy is digitalis; the reaction to this is a good test as to whether the patient is likely to improve or not. It must, however, be given with caution since some cases are made worse by it. Strophanthus is safer. Diuretin is of value both as a diuretic and as a stimulant. Nitrites and iodides are used to diminish peripheral resistance.

The Treatment of Dilatation of the Heart. KATZENBACH (*Internat. Clinics*, series 16 no. 3) holds that the prognosis and results of treatment in dilatation of the heart are better than is commonly taught. He speaks especially of the acute dilatation which occurs after middle life in persons who for some time have had some shortness of breath, palpitation or feeling of fullness in the chest, and after some over-exertion are suddenly attacked with acute symptoms of broken compensation. Examination shows the heart to be dilated, rapid, perhaps irregular in action, with a soft systolic murmur (never harsh unless there is a lesion of the mitral valve) transmitted to the axilla; there may be crepitant râles in the lungs or edema of extremities. The treatment is, first of all rest in bed twelve hours of the day and reclining position most of the remainder. A few small doses of morphine may be necessary at first to quiet cough. Fresh air should be insisted upon as much as in respiratory diseases. Diet is to be regulated so as to avoid distention of stomach and intestines; regular action of the bowels must be obtained. To stimulate the heart Katzenbach uses a mixture of the tinctures of digitalis, strophanthus and nux vomica in equal parts, gtt xx. t. i. d., a. c.; as soon as the pulse rate becomes normal, the digatalis in this is to be omitted. In convalescence, a simple tonic replaces the above prescription and carefully graduated exercise is begun. The Nauheim baths may be of service, taken at home.

Leukemia and Sarcomatosis. BANTI (*Internat. Clinics*, series 16, no. 3), in reviewing the theories held with regard to the nature of leukemias, finds that most writers agree that the disease is due to a hyperplasia of the lymphopoietic and hemopoietic tissues, with increased power of forming lymphocytes and granular leukocytes, the excess of white cells in the blood being regarded as either normal white corpuscles, or normal corpuscles in immature stages. Banti, however, finds important differences between conditions existing in leukemias (both lymphatic and myelogenous) and in conditions of simple hyperplasia. The hyperplasia in leukemic tissues does not follow the normal structures of the tissues in which it occurs, but grows atypically and may break through walls into surrounding tissues or into veins; true metastases may be formed; in myelogenous leukemia the myelocytes are often very large as compared with the myelocytes of bone marrow. These facts, with others fully described, lead Banti to the opinion that leukemias belong to the class of sarcomas, the blood condition arising from the escape of tumor cells into the blood, there developing but retaining the features of the original tumor cells.

Trypsin for the Cure of Cancer. MORTON (*Med. Rec.*, Dec. 8, 1906) has used trypsin in treatment of 30 cases of cancer, mostly advanced, since April, 1906. Two cases of quite extensive face cancer are cured to date. In one breast cancer, a remarkable atrophy of the growth has ensued. In many cases the progress of the disease has come to a standstill. This method of treatment, originated by Beard of Edinburgh, is based upon the theory that the cancer cells, supposed to be of embryonic character, may be destroyed by pancreatic enzymes, especially trypsin, given hypodermically; amylopsin also is used. Brief reports of cases are given. Further evidence is demanded before the results of this treatment can be accepted.

Intestinal Origin of Pulmonary Anthracosis. GEORGE PETIT, interne at the Lille Hospital, on the advice of Calmette has made some interesting experiments on the subject of the intestinal origin of pulmonary anthracosis. (*Presse Médicale*, Oct. 13, 1906.) Vansteenberghe and Grysez have already shown that animal charcoal, when swallowed by adult guinea pigs, will be found finally in the lungs. It is well known that, although in adults and in old age a condition of anthracosis is quite normal, that in infants' lungs it is never found. Going on this basis, Petit took a series of six infants under one year, suffering from pulmonary tuberculosis, enteritis and infantile atrophy. These infants, some time before death, were given by means of a stomach tube 15-20 cc. of water containing powdered charcoal in suspension. This procedure seemed to do no harm to the infants and did not affect the course of the disease. At autopsy, the lungs, intestinal villi, mesenterie glands, and bronchial glands of the cases of infantile atrophy showed no evidence of anthracosis while the lungs, glands etc., of the cases of tuberculosis in every instance showed marked deposit of pigment.

He concludes: (1) The intestinal origin of pulmonary anthracosis is a definite fact in some cases. (2) Absorption of pigment is rendered much easier by the presence of tuberculosis, where "the mesenteric barrier is broken." (3) Anthracosis in man depends, (1) on the amount of pigment swallowed, and (2) on the permeability or non-permeability of the glands, particularly those of the mesentery.

The Value of Rectal and Colon Irrigation in Nephritis. KEMP (*Am. Medicine*, November, 1906) describes the

action upon the kidneys of irrigation of the colon with hot salt solution, studied by him experimentally upon animals and clinically in human beings. Even in uremic conditions hot irrigations produce marked diuresis. They also relieve acute renal congestion, the relief being proved by the diminution of abnormal constituents in the urine. He gives irrigations of 3 to 12 gallons of normal saline solution (.6%) at 115° to 120° F., through a recurrent irrigator, sometimes as often as every two or three hours.

Miscellany.

PURIFICATION OF SEWAGE.

A VALUABLE contribution to the literature on the disposal and purification of sewage has just been issued by the United States Geological Survey as "Water Supply and Irrigation Paper No. 185. Investigations on the purification of Boston sewage with a history of the sewage-disposal problem, by C.-E. A. Winslow and E. B. Phelps." The volume of sewage discharged by modern communities is so large and the character of all kinds of sewage is always so objectionable that the so-called sewage-disposal problem becomes, from the economic as well as the sanitary point of view, one of the most serious with which American cities have to deal. It is of vital importance to every community to secure such a disposal of obnoxious sewage as will avoid the creation of any insanitary focus or foci in the environment, or any infringement of the laws of hygiene and sanitation.

The investigations described in this publication were made at the Sanitary Research Laboratory and Sewage Experiment Station of the Massachusetts Institute of Technology, under the direction of Prof. William T. Sedgwick. The station at which the work was carried on is situated on the line of the main trunk sewer of the south metropolitan district of Boston, at a point where it contains the sewage of about half a million people. At this station pumps were installed and tanks were constructed for tests of the various methods of sewage purification. The results of this work and the practical conclusions that have been drawn are given in "Water Supply Paper No. 185," which may be obtained on application to the director of the United States Geological Survey, Washington, D. C. These results are by no means applicable merely to large cities, but contain lessons of practical value to all communities having to deal with the ever present sewage-disposal problem. The description of the experiments is preceded by a careful and elaborate historical review of the whole sewage-disposal problem from its origin in the wide adoption of the water-carriage system up to the present time, when that system has become practically universal. This interesting review cannot fail to be of the highest value to expert engineers, sewage commissioners and cities all over the United States, especially those numerous small communities that are confronted, perhaps for the first time, with a problem that means so much for the health as well as the finances of the citizens.

Correspondence.

HYPERACIDITY NOT THE RULE IN GASTRIC ULCER.

BOSTON, Jan. 5, 1907.

Mr. Editor: The following statement by Professor Ewald, in Billings's "Diseases of the Digestive System," 1906, page 171, seems of sufficient interest to warrant more general attention than it will probably receive from the comparatively few readers of the publication in which it appears. Ewald says: "The early view that an increased production of HCl is a necessary, or, at least an almost invariable, accompaniment of gastric ulcer, can no longer be maintained, being contrary to the comprehensive observations of the last few years." This view of the subject, is, of course, contrary to all past teachings, even to those of our most modern text-books. It is contradictory to Ewald's own statement in his "Diseases of the Stomach" that "in cases of ulcer, the gastric juice always contains HCl and usually an excess of it."

It is evident, then, that Ewald has changed his view, but he offers no further explanation for the same than is contained in his later statement. He further says, however, that he was surprised to find that in his own cases of ulcer only 34% showed hyperacidity. Personally, I am pleased to note Ewald's later view of the subject, because for the past several years, I have taught in lectures to the students of Tufts College Medical School, that in my experience hyperchlorhydria is not the rule in gastric ulcer.

Of late, I have occasionally seen it stated by various writers, that there are many cases of ulcer which do not show hyperchlorhydria, but in so far as I know Ewald is the first to flatly deny that hyperchlorhydria is the rule. The source from which this statement comes naturally lends much weight, yet there may be some who require further explanation as to why this old established rule should be controverted.

I offer the following as a partial explanation. Formerly the normal total acidity of the gastric contents, one hour after an Ewald test breakfast, was considered as 40–60 per 100, and an acidity exceeding 60 was considered as hyperchlorhydria if due to HCl, or a hyperacidity if due to other acids. Of late, here in America, it has been shown by Hewes (BOSTON MEDICAL AND SURGICAL JOURNAL, 1897) and later by myself (*Philadelphia Medical Journal*, June 14, 1902) and very likely by others, that the average total acidity in healthy persons (medical students) under the above conditions, is about 70 per 100. In 15 of my 35 cases the total acidity exceeded 70. So that at the present time, many are inclined to place the normal total acidity at 40–70 per 100 instead of 40–60, as formerly. By thus raising the maximum limit of total acidity from 60 to 70, we have, of course, cut down that number of cases which were formerly considered as hyperchlorhydria, having an acidity between 60 and 70 per 100.

Moreover, the number of cases upon which our present statistics are based is far greater than formerly.

Another change, which seems consistent with the present one, has occurred in the past few years in the amount of gastric contents one hour after an Ewald test breakfast. Formerly the figures were given as 40–60 cc. by the Germans, but now we know that 100 cc. is nearer the average normal amount.

Conceding that hyperchlorhydria is not the rule in gastric ulcer, the fact has considerable bearing on diagnosis and treatment of this disease.

Hyperchlorhydria loses much of its value as a diagnostic symptom, and the assumed or determined condition will less often require treatment.

I venture to say that the correctness of Ewald's late view will ere long be confirmed by numerous other writers on the subject.

Very truly yours,

RICHARD F. CHASE, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 29, 1906.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,558	367	Quincy	10	1
Chicago	575	183	Waltham	7	—
Philadelphia	532	136	Gloucester	2	—
St. Louis	—	—	Pittsfield	14	4
Baltimore	221	57	Brookline	15	5
Cleveland	—	—	North Adams	6	2
Buffalo	—	—	Chicopee	8	1
Pittsburg	—	—	Northampton	6	1
Cincinnati	—	—	Medford	5	1
Milwaukee	—	—	Beverly	2	1
Washington	—	—	Hyde Park	2	—
Providence	68	22	Newburyport	—	1
Boston	219	46	Leominster	—	—
Worcester	38	6	Melrose	—	—
Fall River	39	15	Woburn	8	2
Cambridge	33	7	Marlborough	4	0
Lowell	40	8	Westfield	7	—
Lynn	26	3	Peabody	—	—
New Bedford	31	8	Revere	4	2
Springfield	23	4	Clinton	1	1
Lawrence	18	9	Attleboro	3	1
Somerville	14	0	Adams	1	—
Holyoke	25	7	Gardner	—	—
Brockton	13	1	Milford	1	1
Malden	10	1	Weymouth	2	0
Salem	18	3	Framingham	3	1
Chelsea	18	2	Watertown	1	1
Haverhill	11	1	Plymouth	—	—
Newton	16	4	Southbridge	—	—
Fitchburg	11	2	Wakefield	—	—
Taunton	12	3	Webster	—	—
Everett	8	1			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DEC. 26, 1906.

PETTUS, W. J., assistant surgeon-general. Granted leave of absence for 1 day, Dec. 26, 1906. Dec. 26, 1906.

WERTENBAKER, C. P., surgeon. Relieved from duty at St. John, N. B., effective Dec. 31, 1906, and directed to assume command of the service at Norfolk, Va. Dec. 21, 1906.

WERTENBAKER, C. P., surgeon. Leave of absence for 3 months from Dec. 1, 1906, amended to read for 1 month. Dec. 26, 1906.

BLUE, RUPERT, passed assistant surgeon. Relieved from duty at Norfolk, Va., to take effect Dec. 31, 1906. Dec. 21, 1906.

BILLINGS, W. C., passed assistant surgeon. Granted leave of absence for 2 days, Dec. 28 and 29, 1906. Dec. 24, 1906.

EARLE, B. H., passed assistant surgeon. Granted leave of absence for 10 days from Dec. 24, 1906. Dec. 21, 1906.

LLOYD, B. J., passed assistant surgeon. Granted leave of absence for 10 days. Dec. 24, 1906.

BOGGESS, J. S., assistant surgeon. Granted leave of absence for 3 days from Dec. 21, 1906, under paragraph 191 of the regulations.

ASHFORD, F. A., assistant surgeon. Directed to rejoin his station at Ellis Island, N. Y. Dec. 21, 1906.

KEATLEY, H. W., acting assistant surgeon. Granted leave of absence for 30 days on account of sickness, beginning Nov. 19, 1906. Dec. 26, 1906.

SCHWARTZ, L., acting assistant surgeon. Granted leave of absence for 7 days from Dec. 17, 1906, under paragraph 210 of the regulations.

HALL, L. P., pharmacist. Granted leave of absence for 7 days from Dec. 24, 1906, under paragraph 210 of the regulations.

APPOINTMENTS.

DR. M. CLAUDE TERRY, appointed an acting assistant surgeon in the Public Health and Marine-Hospital Service for duty at San Francisco Quarantine Station. Dec. 26, 1906.

DR. JOHN O. RUSH, appointed a temporary acting assistant surgeon in the Public Health and Marine-Hospital Service for duty at Mobile, Ala. Dec. 26, 1906.

BOARD CONVENED.

A board of officers was convened at Portland, Me., on Jan. 21, 1907, for the purpose of examining Pharmacist C. H. Bierman to determine his fitness for promotion to the grade of Pharmacist of the Second Class. Detail for the Board: Surgeon W. P. McIntosh, chairman; Acting Assistant Surgeon A. F. Stuart, recorder. Dec. 20, 1906.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JAN. 5, 1907.

B. L. WRIGHT, surgeon. When discharged from treatment at the Naval Hospital, New York, N. Y., ordered to treatment at the Naval Hospital, New Fort Lyon, Colo.

J. G. FIELD, surgeon. Detached from duty at the Naval Hospital, New Fort Lyon, Colo., and ordered to duty with Marine Recruiting Party, Dallas, Texas.

G. G. HART, acting assistant surgeon. Detached from duty with Marine Recruiting Party, Dallas, Texas, and ordered to the Naval Training Station, San Francisco, Cal.

E. R. MARSHALL, assistant surgeon. Detached from the Naval Station, Guantanamo, Cuba, and from duty on the "Monongahela," and resignation accepted, to take effect Jan. 11, 1907.

SOCIETY NOTICES.

NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — The annual meeting of the New England Hospital Medical Society will be held at Hotel Oxford, 40 Huntington Ave., Boston, Thursday, Jan. 17, 1907. Speakers: Miss Alice M. Higgins of the Associated Charities, Boston, Mass., "The relief work done in San Francisco, Cal., at the time of the earthquake"; Miss Caroline J. Cook, Councillor at Law, Boston, Mass., "The law governing women wage earners"; Mrs. Kate Denig Tower, Boston, Mass., "A talk about birds."

BLANCHE A. DENIG,
Secretary.

BOSTON MEDICAL LIBRARY AND SUFFOLK DISTRICT MEDICAL SOCIETY. — Meeting Wednesday, Jan. 16, 1907, at 8.15 P.M., in John Ware Hall. Paper by Prof. Theodor Schott, Bad Nauheim, Germany, on "The Treatment of Chronic Diseases of the Heart." Drs. Withington, Vickery, Arnold and others are expected to take part in the discussion. The profession is cordially invited to be present. Refreshments after the meeting.

GEORGE W. GAY, M.D.,
J. C. HUBBARD, M.D.,
R. B. OSGOOD, M.D.,
Committee on Medical and Social Meetings.

RECENT DEATHS.

DR. JOSEPH A. ALDRICH, formerly a surgeon in the United States Army, died in New York at the age of eighty-nine years. While serving in Minnesota during the Indian wars he won distinction.

DR. THEODORE F. MORRIS, who for over forty years was a practitioner in Jersey City, N. J., died on Jan. 3, while visiting relatives in Astoria, Borough of Queens, New York. He retired from active work about five years ago.

BOOKS AND PAMPHLETS RECEIVED.

Kezmarsky's Decapitating Eraseur. By Myron Metzenbaum, B.S., M.D. Reprint.

Specimen of Pseudarthrosis or False Joint of the Ulna. By Myron Metzenbaum, B.S., M.D. Reprint.

Ether-Air Anesthesia or the Drop Method for the Administration of Ether. By Myron Metzenbaum, B.S., M.D. Reprint.

The Vienna Clinics. By Myron Metzenbaum, B.S., M.D. Reprint.

Some Tendencies in Medicine Today. By William Clark, M.D.

Transactions of the American Association of Obstetricians and Gynecologists. Vol. XVIII. For the year 1905. New York: The Greenwich Printing Co. 1906.

Massage in Sprains, Bruises and Dislocations. By Douglas Graham, M.D. Reprint.

Urethral Dilatations with Expansible Instruments. By Ferd. C. Valentine, M.D., and Terry M. Townsend, M.D. Reprint.

The Prevention of Venereal Diseases. By Ferd. C. Valentine, M.D., and Terry M. Townsend, M.D. Reprint.

The Venereal Peril In Its Relation to the State. By Ferd. C. Valentine, M.D. Reprint.

The American Urological Association. By Ferd. C. Valentine, M.D. Reprint.

Education in Sexual Subjects. By Ferdinand C. Valentine, M.D. Reprint.

Text-Book of Medical Jurisprudence and Toxicology. By John J. Reese, M.D. Seventh edition. Revised by Henry Leffmann, A.M., M.D. Philadelphia: P. Blakiston's Son & Co. 1906.

Original Articles.

THE MEDICAL KNOWLEDGE OF SHAKESPEARE.

BY ALBERT C. GETCHELL, M.D., WORCESTER, MASS.

My purpose in this paper is to bring together in groups passages from Shakespeare's plays and poems, to show his knowledge of medical matters. In so doing I have no intention of putting forth the claim that he was a medical man, or that he had paid especial attention to medical science, if such could be said to be in existence in his day.

His genius was universal, beyond that of any writer of modern times. It embraced not only the power of thought and expression, of imagination and fancy, but of observation as well. Nothing escaped him. He saw everything, and he absorbed and retained whatever he saw. He was not a scholarly recluse, but a man of the world. He was at home with the stable boy and the learned Jonson, and both the boy and the wise man contributed to his knowledge. Books, without doubt, served him also, but after the same manner that the market, tavern, theatre or court did. Essentially he was a dramatist and poet. He did not follow after knowledge for its own sake, and was not over particular about his facts. He was a playwriter, not a scientist. So we never find him using his literary thought to enforce or illustrate a scientific fact, but on the contrary his facts are always subordinate to the thought or dramatic situation in hand. One is impressed, therefore, not with the originality of his knowledge, but with the wonderful grasp that he had of the knowledge of his time, and the artistic skill with which he used it.

It will be well, at the outset, to glance at the chronological relation of Shakespeare's life to the important medical men and events of his time.

William Shakespeare was born in 1564, and died in 1616. In 1621, the "Novum Organum" of Sir Francis Bacon, the source and inspiration of modern science, was published. William Harvey lived from 1578 to 1637. His paper on the "Circulation of the Blood" was published in 1628. Ambroise Paré died in 1590. Sydenham, the father of modern medicine, lived from 1624 to 1689.

Shakespeare, therefore, lived just before the birth of modern physical science and modern medicine. The practice of medicine of his day was a compound of the teachings of the great masters of antiquity, Hippocrates and Galen, the medical lore of the Arabians brought in by the crusaders, and the monastic mysticism and superstition of the Middle Ages, modified and leavened by the common sense of the British mind. Attempts had already been made to bring it to a sensible basis, as we would say now, to regulate the practice of medicine. Thus the College of Physicians, incorporated in the reign of Henry VIII, even in Shakespeare's time was an important and influential body, and attempted to direct and protect the community in medical matters.

The play, "All's Well that Ends Well," has an allusion to this college and its purposes. The plot is founded on a medical incident. The king is ill of a trouble that no one of his physicians has been able to successfully treat. His attention is drawn to a young woman, the daughter of a famous physician, who wishes to try a remedy which she has inherited from her father. He grants her an interview (II, 1, 101):

"*King.* Now, fair one, does your business follow us?
Helena. Ay, my good lord.
Gerard de Narbon was my father,
In what he did profess well found.
King. I knew him.
Helena. The rather will I spare my praises toward him;
Knowing him, is enough. On's bed of death
Many receipts he gave me: chiefly one,
Which, as the dearest issue of his practice,
And of his old experience the only darling,
He bade me store up as a triple eye,
Safer than mine own two, more dear. I have so;
And, hearing your high majesty is touch'd
With that malignant cause, wherein the honour
Of my dear Father's gift stands chief in power,
I come to tender it and my appliance,
With all bound humbleness.
King. We thank you, maiden;
But may not be so credulous of cure.
When our most learned doctors leave us, and
The congregated college have concluded
That labouring art can never ransom Nature
From her inaidable estate; I say, we must not
So stain our judgment, or corrupt our hope,
To prostitute our past-cure malady
To empirics, or to dissever so
Our great self and our credit, to esteem
A senseless help, when help past sense we deem."

However, his objections and prejudices were overcome, he put himself under her care and was cured.

Shakespeare appears to have regarded the practice of medicine as an honorable and worthy profession. Curiously enough, however, the one doctor he holds up to ridicule suggests the lives of two distinguished physicians. This is Dr. Caius of the "Merry Wives of Windsor." It will be recalled he was a Frenchman, with insufficient knowledge of English, and was made the butt of many jokes in that merry play. Now there were two physicians in England during the life of the poet, Dr. John Caius,[1] an Englishman, and Sir Theodore Turguet de Mayerne,[2] a Swiss, who attained eminence in their professional careers. Dr. Caius was in his day a successful and distinguished man, president many times of the College of Physicians, and physician to three English sovereigns. He was interested in Gonville College, Cambridge, which by his gifts of money and personal care and oversight was enlarged and took also his name, so that it is known even to this day as Caius College, and contains this laconic memorial to him, "*Fui Caius vivit post funera virtus.*" Sir Theodore came first to England in 1606, six years after the Merry Wives was written. But that he did come, and that he was so well treated in England would indicate

[1] Biographical History of Gonville and Caius College, John Venn. London, 1901, Vol. 3, p. 30.
[2] Dictionary of National Biography. London, 1894, vol. xxxvii, p. 150.

that French physicians were not strangers in English life. The dramatist's reason for the character doubtless was that it was what he wanted for the play. Why he called him Dr. Caius can be only a matter of conjecture.

The study and practice of medicine was not beneath the dignity of a person of noble birth. A fellow of the College of Physicians, a contemporary of Shakespeare's later years, was the Marquis of Dorchester. He esteemed his fellowship in the college an honor second only to that of his peerage, and bequeathed to the college his library valued at £4,000.

Another medical peer was also Shakespeare's contemporary, Edmund, Earle of Derby, who died in Queen Elizabeth's day, and was famous for "chirurgirie, bone-setting and hospitalitie."[3] Such a one did Shakespeare delineate in Cerimon, Lord of Ephesus, a character in the play "Pericles" (III, 2, 26):

"*Cerimon.* I held it ever,
Virtue and cunning were endowments greater
Than nobleness and riches: careless heirs
May the two latter darken and expend;
But immortality attends the former,
Making a man a god, 'Tis known, I ever
Have studied physic, through which secret art,
By turning o'er authorities, I have
(Together with my practice) made familiar
To me and to my aid the blest infusions
That dwell in vegetives, in metals, stones;
And I can speak of the disturbances
That nature works, and of her cures; which doth give me
A more content in course of true delight,
Than to be thirsty after tottering honour,
Or tie my treasure up in silken bags,
To please the fool and death."

The physicians of the plays are Dr. Caius, of "The Merry Wives of Windsor," already alluded to; Cornelius of "Cymbeline"; Dr. Butts, of "King Henry VIII" and those of "Macbeth" and "King Lear," who have no other names than doctor.

Dr. Butts was introduced to serve a purpose of the play, defeating for a time the machinations of Gardiner, and no allusion is made to his character as a physician. But the three others, Cornelius of "Cymbeline" and the doctors of "Macbeth" and "King Lear," figure in their medical capacity. Cornelius appears to be a discreet and shrewd man who divines the purposes of the crafty queen, and defeats them. The doctor of "Macbeth" is a careful, rather timid, man, evidently overpowered by the horrors he sees enacted about him. He can but note the condition of the unhappy queen, and acknowledge himself powerless to help her. When Macbeth asks (V, 3, 40),

"Canst thou not minister to a mind diseas'd,
Pluck from the memory a rooted sorrow,
Raze out the written troubles of the brain,
And with some sweet oblivious antidote
Cleanse the stuff'd bosom of that perilous stuff
Which weighs upon the heart?"

he replies:

"Therein the patient
Must minister to himself."

[3] The Medical Knowledge of Shakespeare. John Charles Bucknill, M.D., London, 1866, p. 276.

And later he shows his inadequacy to cope with the situation, when he says (*Ibid.*, line 61):

"*Doctor.* Were I from Dunsinane away and clear,
Profit again should hardly draw me here."

On the other hand, the doctor in "Lear" is a resourceful man, and his treatment of the insane old king is humane and wise. This is somewhat remarkable, as the treatment of insanity at that time and for a long time afterward was, as Rosalind says in "As You Like It" (III, 2, 393), "a dark house and a whip." Cordelia sends out searchers for her father, and says (King Lear, IV, 4, 8):

"*Cordelia.* What can man's wisdom
In the restoring his bereaved sense?
He that helps him, take all my outward worth.
Physician. There is means, madam;
Our foster-nurse of nature is repose,
The which he lacks; that to provoke in him,
Are many simples operative, whose power
Will close the eye of anguish."

Acting on this idea, when the old king is found, he is treated kindly and put to sleep, and later allowed to waken by the sound of music under the direction of the doctor.

It is interesting in this connection to recall the fact that Shakespeare's daughter Susanna was married in 1607, June 5, to John Hall, a physician of Stratford, whom, from the cordial relations that existed between the two, Shakespeare must have known well. This Dr. Hall was a reputable man, as is shown by the registration of his burial, "1635, Nov. 26; Johannes Hall, Medicus peritissimus."

Dr. Hall wrote a book in Latin, which was of enough value to be later translated. The title is as follows:

"Select Observations on English Bodies, or Cures Empirical and Historical, Performed on very Eminent Persons in Desperate Disorders. First written in Latin by Mr. John Hall, Physician, of Stratford, where he was very famous, as also in counties adjacent. Now put into English for common benefit by James Cook, Practitioner in Physick and Chirurgery. London: Printed by John Shirley, at the Golden Pelican in Little Brittain 1657."

The monkish physic of the Middle Ages was practiced by religious orders of both sexes. Thus, the Abbess, in "The Comedy of Errors" (V, i, 102), replies to the importunate Adriana, who demands of her her husband:

"*Abbess.* Be patient; for I will not let him stirr,
Till I have us'd the approved means I have,
With wholesome syrups, drugs, and holy prayers,
To make of him a formal man again.
It is a branch and parcel of mine oath,
A charitable duty of my order;
Therefore depart, and leave him here with me."

In general, Shakespeare spoke of physicians and of medical matters with respect. But he had his flings at the doctors, as the following passages show:

"*Sempronius.* Must I be his last refuge? His friends, like physicians,
Thrice give him over! Must I take the cure upon me?"
(Timon of Athens, III, 3, 11.)

"*Pericles.* Thou speakest like a physician, Helicanus,
That minister'st a potion unto me,
That thou would'st tremble to receive yourself."
(Pericles, I, 2, 66.)

"*Cornelius.* Hail, great king!
To sour your happiness, I must report
The Queen is dead.
Cymbeline. Who worse than a physician
Would this report become? But I consider
By medicine life may be prolong'd, yet death
Will seize the doctor too."
(Cymbeline, V, 5, 26.)

Macbeth's exclamation, "Throw physic to the dogs. I'll none of it" (Macbeth, V, 3, 47), does not mean so much contempt of medicine, as his impatience at the doctor who stands irresolute at his task, when Macbeth is all for action, although dangers are thickening about him. That he did not hold medicine in contempt may be shown by many passages — to quote only one:

"Give physic to the sick, ease to the pained."
(Rape of Lucrece, 901.)

CIRCULATION OF THE BLOOD.

William Harvey was a contemporary of Shakespeare, and it is not improbable that they may have known each other, as Shakespeare knew many of the foremost men of his day. But there is no ground for the belief that he had learned of Harvey anything of the circulation of the blood. It is true that Harvey conceived his great idea several years before he finally published his investigations. It is known that the doctrine of the circulation of the blood had taken definite shape in his mind as early as 1613, since soon after that time he began to make it known through his lectures, but he did not publish the results of his researches until 1628, after submitting them to fifteen years of proofs and counter proofs of every kind. So bitter was the opposition to the new doctrine, that his first publication, "Concerning the Motions of the Heart and the Blood," was unable to pass censorship in England, and, therefore, appeared in Frankfort in 1628.[4]

Now, Shakespeare's literary activity ceased about 1613. So that, while certain passages seem to indicate a sort of advance knowledge of the circulation of the blood, he could not have had this knowledge. A more careful examination shows that his ideas were those current at the time, and that they shared the knowledge as well as the ignorance of his contemporaries.

In "Measure for Measure," Angelo, as he contemplates the seduction of Isabel, exclaims:

"*Angelo.* O heavens!
Why does my blood thus muster to my heart,
Making both it unable for itself,
And dispossessing all my other parts
Of necessary fitness?"
(Measure for Measure, II, 4, 20.)

When Portia expostulates with Brutus for not taking her into his confidence, he replies:

"*Brutus.* You are my true and honourable wife;
As dear to me as are the ruddy drops
That visit my sad heart." (Julius Cæsar, II, 1, 288.)

Malvolio refers to the anatomical fact of the return of the blood from the extremities along the surface through the veins, when he says:

"*Malvolio.* Sad, lady? I could be sad. This does make some obstruction in the blood, this cross-gartering."
(Twelfth Night, III, 4, 20.)

The vital and healthful or unhealthful qualities of the blood are alluded to in the following quotations:

"*King Philip.* And this is Geffrey's. In the name of God,
How comes it then, that thou art call'd a king,
When living blood doth in these temples beat."
(King John, II, 1, 106.)

Pandulph also speaks of the life of the blood:

"That whiles warm life plays in that infant's veins."
(King John, III, 4, 131.)

Again:

"*King John.* Or if that surly spirit, melancholy,
Had bak'd thy blood, and made it heavy-thick,
(Which, else, runs tickling up and down the veins . . .)"
(King John, II, 3, 42.)

showing the supposed effect of mental states upon the blood. There were many curious notions as to the function of the arteries. Their name designates them as air carriers; related to that was their supposed function as conveyers and distributers of the vital spirit.

"*Biron.* Why, universal plodding prisons up
The nimble spirits in the arteries,
As motion, and long-during action, tires
The sinewy vigour of the traveller."
(Love's Labour's Lost, IV, 3, 302.)

When Hamlet breaks away from Horatio to follow the ghost, he exclaims:

"My fate cries out,
And makes each petty artery in this body
As hardy as the Nemean lion's nerve."
(Hamlet, I, 4, 81.)

An organ so large and vascular as the liver was necessarily supposed to have an intimate and important relation to the blood. The absence of blood from the liver was thought to be a mark of pusillanimity and cowardice. Thus Sir John Falstaff discourses on the virtues of sack:

"The second property of your excellent sherris is the warming of the blood; which, before cold and settled, left the liver white and pale, which is the badge of pusillanimity and cowardice; but the sherris warms it . . . and then the vital commoners, and inland petty spirits, muster me all to their captain, the heart, who, great, and puffed up with this retinue, doth any deed of courage."
(King Henry IV, Part II, IV, 3, 104.)

Sir Tobey Belch also makes sage remarks to the same effect:

"For, Sir Andrew, if he were opened, and you find so much blood in his liver, as will clog the foot of a flea, I'll eat the rest of the anatomy."
(Twelfth Night, III, 2, 59.)

The following quotation is a pretty good description of the function of the blood in the process of nutrition:

[4] Roswell Park: Epitome of the History of Medicine, Philadelphia. 1893, p. 156.

"*Menenius.* Note me this, good friend;
Your most grave belly was deliberate,
Not rash like his accusers, and thus answer'd: —
'True is it, my incorporate friends,' quoth he,
'That I receive the general food at first,
Which you do live upon; and fit it is,
Because I am the storehouse, and the shop
Of the whole body; but, if you do remember,
I send it through the rivers of your blood,
Even to the court, the heart, to the seat o' the brain;
And, through the cranks and offices of man,
The strongest nerves, and small inferior veins,
From me receive that natural competency
Whereby they live.'" (Coriolanus, I, 1, 127.)

Shakespeare makes frequent reference to the heart as the seat of the emotions, as do other poets. But in one place he gives an accurate description of cardiac disturbance attending nervous excitement,— so accurate, indeed, that Da Costa in his work on "Diagnosis" (seventh edition, page 700) quotes the passage:

"His hand, that yet remains upon her breast
(Rude ram to batter such an ivory wall!),
May feel her heart (poor citizen!) distressed,
Wounding itself to death, rise up and fall,
Beating her bulk, that his hand shakes withal."
(Rape of Lucrece, 463.)

MATERIA MEDICA.

It would be a mistake to take the poor starved apothecary of Mantua, who sold the poison to Romeo, as a type of the apothecaries of London of the sixteenth century. If we are to believe the writers of the time who commented on the coach-keeping apothecaries and their lucrative business, they were a prosperous set, and, therefore, must have sold many drugs. The agents used in the treatment of disease were not the refined products of the laboratory of our day, but the herbs themselves, or the direct extracts from them.

Falstaff, in his coarse love-making to Mistress Ford, makes a reference, not only to the herbalism of those days, but to the place where the herbs were sold:

"Come; I cannot cog, and say thou art this and that, like a many of these lisping hawthorn-buds, that come like women in men's apparel, and smell like Bucklersbury in simple-time." (Merry Wives of Windsor, III, 3, 67.)

Shakespeare speaks of many drugs by name, thus:

"*Macbeth.* What rhubarb, senna, or what purgative drug
Would scour these English hence?"
(Macbeth, V, 3, 55.)

The drug mentioned in "Much Ado about Nothing" (III, 4, 70),

"Get you some of this distilled Carduus Benedictus, and lay it to your heart; it is the only thing for a qualm,"

we do not know of now. But Salmon (A.D. 1693) in his "Seplasium or Druggist Shop Opened," page 1905, records fifteen preparations of carduus benedictus or holy thistle in use among medical men, and reports that "it is excellent against pleurisie, obstructions, malign humors, vertigo, worms, agues, plagues, cures green wounds and is good against the biting of mad dogs or any other venomous creatures." In truth, it was a medicine in great repute in Shakespeare's time and long afterwards.[5]

Mandragora we find spoken of in "Anthony and Cleopatra" (I, 5, 3):

"*Cleopatra.* Ha, Ha! —
Give me to drink mandragora.
Charmian. Why, madam?
Cleopatra. That I might sleep out this great gap of time,
My Antony is away."

Shakespeare refers to this drug again in the same sense:

"*Iago.* . . . Not poppy, nor mandragora,
Nor all the drowsy syrups of the world,
Shall ever medicine thee to that sweet sleep
Which thou ow'dst yesterday."
(Othello, III, 3, 332.)

Mandragora was extensively used by the ancients, and according to Salmon was a wonderful narcotic and soporific. The popular name was mandrake, and the curious tradition was attached to it, that when pulled from the earth it uttered a groan:

"Would curses kill, as doth the mandrake's groan."
(Henry VI, Part II, III, 2, 310.)

"And shrieks like mandrakes torn out of the earth,
That living mortals, hearing them, run mad."
(Romeo and Juliet, IV, 3, 47.)

Opium, although it is not so stated, is doubtless the drug alluded to in the following quotations:

"*Archidamus.* . . . We will give you sleepy drinks, that your senses, unintelligent of our insufficience, may, though they cannot praise us, as little accuse us."
(Winter's Tale, I, 1, 15.)

"*Lady Macbeth.* . . . I have drugged their possets,
That death and nature do contend about them,
Whether they live or die." (Macbeth, II, 2, 5.)

So also the drug which Pisanio gave to Imogen in the wilderness near Milford-Haven:

"*Pisanio.* . . . My noble mistress,
Here is a box; I had it from the queen:
What's in't is precious; if you are sick at sea,
Or stomach-qualm'd at land, a dram of this
Will drive away distemper." (Cymbeline, III, 4, 190.)

He gave it to her for sea-sickness or stomach qualms, but from the effects it had when she later took it, putting her into a death-seeming sleep, from which she awakened to see the headless trunk of the despised Cloten in the dress of her Posthumus, it probably was opium.

It is cannabis indica that Sir Tobey refers to, speaking of Maria, "That wittiest piece of Eve's flesh in all Illyria," when he says:

"*Sir Tobey.* Here comes the little villain. How now, my metal of India?" (Twelfth Night, II, 5, 14.)

References are made in the plays to certain poisons, so far as we know, impossible poisons. Thus allusion is made to poisons that work at a certain time:

"All three of them are desperate: their great guilt
Like poison given to work a great time after
Now 'gins to bite the spirit."
(Tempest, III, 3, 106.)

[5] Bucknill, p. 115.

So, too, the poison that the Friar gave to Juliet would produce complete cessation of all the vital functions, and at a given time, like a clock in a bank vault, would allow life to return:

"*Friar Laurence.* Take thou this phial being then in bed
And this distilled liquor drink thou off:
When presently through all thy veins shall run
A cold and drowsy humor, which shall seize
Each vital spirit: for no pulse shall keep
His natural progress, but surcease to beat;
No warmth, no breath shall testify thou liv'st;
The roses in thy lips and cheeks shall fade
To paly ashes; thy eyes' windows fall,
Like death when he shuts up the day of life:
Each part depriv'd of supple government
Shall stiff and stark, and cold, appear like death:
And in the borrowed likeness of shrunk death
Thou shalt remain full two and forty hours,
And then awake as from a pleasant sleep."
(Romeo and Juliet, IV, 1, 93.)

That the drug worked as the Friar said it would, is evidenced from Capulet's words when he sees her:

"*Capulet.* Ha! let me see her: but alas! She's cold;
Her blood is settled and her joints are stiff.
Life and her lips have long been separated."
(Romeo and Juliet, IV, 5, 24.)

But at the appointed time, according to the Friar's calculations, Juliet wakens at once into the full possession of her faculties.

Ambroise Paré's third chapter on poisons is on the subject, "Whether there be any such Poysons as will kill at a set time?" which after much argument and quoting of authorities he answers in the negative. This shows that this peculiar belief about certain poisons was prevalent in Shakespeare's time. Also there was the belief in the slow action of a poison:

"*Cornelius.* She did confess she had
For you a mortal mineral; which, being took,
Should by the minute feed on life, and ling'ring
By inches waste you." (Cymbeline, V, 5, 50.)

The manner of Hamlet's father's death as narrated by the ghost seems to us strange. But there is reason to believe that the juice of hebenon or henbane was thought to be a poison. According to Pliny, the oil of henbane dropped into the ears disturbed the brain. So also in Anton's Satires, 1606, "The poisoned henbane, whose cold juice doth kill." [6]

"*Ghost.* Sleeping within mine orchard,
My custom always in the afternoon,
Upon my secure hour thy uncle stole,
With juice of cursed hebenon in a vial,
And in the porches of mine ear did pour
The leperous distilment; whose effect
Holds such an enmity with blood of man,
That, swift as quicksilver, it courses through
The natural gates and alleys of the body;
And with a sudden vigour it doth posset
And curd, like eager droppings into milk,
The thin and wholesome blood: so did mine:
And a most instant tetter bark'd about,
Most lazar-like, with vile and loathsome crust,
All my smooth body." (Hamlet, I, 5, 59.)

The old herbalists attributed peculiar virtues to plants gathered in the night and during particular phases of the moon:

[6] Note in Hudson's edition, p. 83.

"*Jessica.* In such a night
Medea gathered the enchanted herbs
That did renew old Aeson."
(Merchant of Venice, V, 1, 13.)

"*Friar Laurence.* Now ere the sun advance his burning eye,
The day to cheer, and night's dank dew to dry,
I must upfill this osier cage of ours,
With baleful weeds, and precious-juiced flowers."
(Romeo and Juliet, II, 3, 5.)

And

"Root of hemlock digged in the dark."
(Macbeth, IV, 1, 25.)

Also,

"I bought an unction of a mountebank
So mortal, that but dip a knife in it,
Where it draws blood, no cataplasm so rare,
Collected from all simples that have virtue
Under the moon, can save the thing from death."
(Hamlet, IV, 7, 140.)

Witchcraft, too, was invoked to give efficacy to drugs. So Brabantio can explain Desdemona falling in love with Othello only on such a supposition:

"*Brabantio.* Judge me the world, if 'tis not gross in sense,
That thou hast practis'd on her with foul charms;
Abus'd her delicate youth with drugs, or minerals,
That weaken motion." (Othello, I, 2, 72.)

Again,

"*Brabantio.* She is abus'd, stol'n from me, and corrupted
By spells and medicines bought of mountebanks."
(Othello, I, 3, 61.)

The following remark of Banquo we cannot classify. It serves to illustrate the way which Shakespeare adapted every thing that came in his way to the dramatic necessities of the play:

"*Banquo.* Were such things here, as we do speak about,
Or have we eaten on the insane root,
That takes the reason prisoner?" (Macbeth, I, 3, 84.)

We know that Shakespeare used North's translation of Plutarch in the construction of his plays, and must have been familiar with it. One of his contemporaries, Sir Thomas Browne, quotes from Plutarch's "Life of Antonius," in which he speaks of men compelled by hunger to eat roots and herbs, and among was them one that made them lose their wits and do such strange things as the whole camp dig stones and cast them from place to place, until as he says, "They cast up a great deal of choler, and died suddenly because they lacked wine, which was the only sudden remedy to cure that disease."

PRACTICE OF MEDICINE.

Internal medicine was not a specialty in Shakespeare's time, nor was surgery. For the sake of clearness, I have grouped observations on these subjects under one heading, which we may call the practice of medicine. First, a few passages relating to the causation of disease:

"Sickness is catching: O, were favour so."
(Midsummer Night's Dream, I, 1, 187.)

"*Marcius.* All the contagion of the south light on you." (Coriolanus, I, 4, 30.)

Again,

"*Olivia.* . . . How now?
Even so quickly may one catch the plague?
Methinks, I feel this youth's perfections
With an invisible and subtle stealth
To creep in at mine eyes." (Twelfth Night, I, 5, 292.)

"Oh, when mine eyes did see Olivia
Methought she purg'd the air of pestilence."
(Twelfth Night, I, 1, 18.)

"Suppose
Devouring pestilence hangs in our air,
And thou art flying to a fresher clime."
(King Richard II, I, 3, 283.)

"*Portia.* What! is Brutus sick;
And will he steal out of his wholesome bed,
To dare the vile contagion of the night,
And tempt the rheumy and impurged air
To add unto his sickness?" (Julius Cæsar, II, 1, 263.)

As the supernatural was invoked in the working of drugs, so also was it in the causation of disease, and in particular the heavenly bodies exercised a controlling influence.

"*Timon.* . . . Be as a planetary plague, when Jove
Will o'er some high-vie'd city hang his poison
In the sick air; let not thy sword skip one."
(Timon of Athens, IV, 3, 107.)

"And therefore is the glorious planet, Sol,
In noble eminence enthron'd and spher'd
Amidst the other; whose med'cinable eye
Corrects the ill aspects of planets evil,
And posts, like the commandment of a king,
Sans cheek, to good and bad; but when the planets,
In evil mixture, to disorder wander,
What plagues, and what portents."
(Troilus and Cressida, I, 3, 89.)

Of late, I believe reference has been made to the efficient health regulations of Italian cities in early time. Such regulations existed. Thus the apothecary sells the poison to Romeo at peril of his life.

"*Apothecary.* Such mortal drugs I have; but Mantua's law
Is death to any he that utters them."
(Romeo and Juliet, V, 1, 66.)

And this passage shows how careful they were about infectious diseases:

"*Friar John.* The searchers of the town
Suspecting that we both were in a house
Where the infectious pestilence did reign,
Seal'd up the doors, and would not let us forth."
(Romeo and Juliet, V, 2, 8.)

The action of the mind on the body and the action of the body on the mind are suggested in these two passages:

"*Agamemnon.* Princes,
What grief hath set the jaundice on your cheeks?"
(Troilus and Cressida, I, 3, 1.)

"*Constance.* . . . For I am sick, and capable of fears."
(King John, III, 1, 12.)

And the two following are selected from many similar ones, which show a considerable knowledge of the physiology of digestion:

"Things sweet to taste prove in digestion sour."
(Richard II, I, 3, 236.)

"Now good digestion wait on appetite,
And health on both." (Macbeth, III, 4, 38.)

(To be continued.)

ANEURISM OF THE AORTA.*

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THE recent presence at the same time in the wards of the Denver City and County Hospital of four cases of aneurism of the transverse portion of the aorta led us to give a joint clinic upon them that the laryngeal and radiographic features of this interesting disease might be brought out as well as the usual clinical signs.

The cases were as follows:

CASE I. Kiler, sixty-six, male, engineer. No history of syphilis. Complains of pain in upper chest, dyspnea, expectoration, choking sensation upon trying to sleep, with occasional vomiting. He is aphonic.



The notes made upon his admission state that the apex beat is one inch to left of left nipple, in fifth space. Heart sounds negative, excepting moderate aortic accentuation. There was marked pulsation to be felt by placing one hand in front and one behind the chest. Marked tracheal tug. A systolic souffle is heard over the upper sternal region and to the left under the clavicle. This area is dull. A diastolic murmur is heard over the aortic region. No pulse can be felt in the left radial artery. There is moderate atheroma, lungs practically negative. Pupils equal and respond to light. The systolic pressure on the right as taken by Dr. Sewall and Dr. Hall was 117 mm., diastolic 80 mm.

The urine was negative. As Dr. Levy will mention, the left vocal cord remains in the cadaveric position. There has been no severe pain and no interference by pressure with any internal organ manifested excepting the left recurrent laryngeal nerve. A pulsating tumor may be seen by the fluoroscope in the dull region mentioned.

The aneurism is, we believe, in the transverse portion of the arch of the aorta, and of quite moderate size, and not growing materially.

This patient was examined again March 9, 1906, by Dr. Hall. The left pulse could be felt very slightly at the wrist, showing that a collateral circulation or

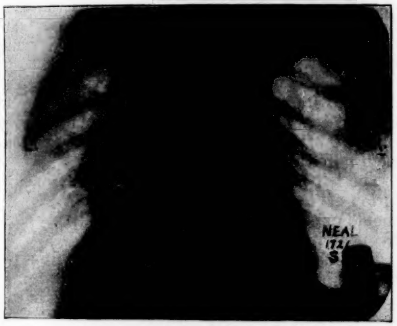
* A clinic at the Denver City and County Hospital, at which four cases of aneurism of the transverse portion of the arch of the aorta were shown.

lessened pressure on the subclavian had permitted the current to become re-established. The heart had retreated a little toward its normal position. The aneurism, with the long rest in bed and the iodide, had become somewhat quiescent and the patient was very comfortable. Within two weeks, however, the lungs became obstructed and doubtless edematous, and he died rather quickly.

In the accompanying Rœntgenogram by Dr. G. H. Stover (Kiler 1723), the shadow of the aneurism may be seen bulging to the left. At the time of the displacement of the heart to the left, the latter organ was carried over by the development of the aneurism in this direction.

CASE II. Neal, colored, male, thirty-five years of age, coachman. Has probably had syphilis.

Two months ago he began to complain of weakness and dyspnea, compelling him to stop work.



He had, upon admission, the following signs: slight edema of ankles. Cardiac beat very diffuse, to be seen in area extending from second space to right of sternum to seventh space two inches to left of nipple. A systolic thrill is felt over most of this area. A loud systolic murmur is heard at the apex, transmitted to the axilla. In the remaining area a continuous whirring murmur of different timbre is heard, loudest in systole, and over the pulmonic region, and transmitted to both subclavian arteries. The arteries of the neck pulsate visibly. Bulging and marked dullness exist over the manubrium. Pulsation can be felt through and through the chest, and with the tip of the finger in the suprasternal notch. Marked tracheal tug and tracheal diastolic shock. Corrigan pulse. Pupils negative. Lungs apparently normal. Abdomen negative.

With the fluoroscope a pulsating tumor may be seen to the left of the manubrium.

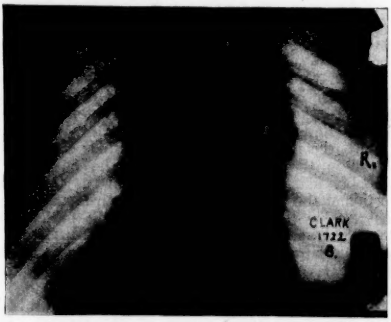
The radial pulses were equal. Blood-pressure, systolic 142 mm.; diastolic 120 mm. The urine was negative. The patient has, we believe, an aneurism of practically the same character and location as the last one, excepting that it does not involve the recurrent nerve. The continuous murmur is generally thought to indicate a communication between the sac of the aneurism and the pulmonary artery.

This patient died seven or eight months later, and, at the post mortem examination, a communication one-fourth inch in diameter was found between the large aneurism of the aorta and a small aneurismal bulging of the root of the pulmonic artery. Apparently during this interval the aortic aneurism had invaded the ascending portion of the arch as well. The cardiac valves were all thickened, but apparently competent, the heart much enlarged, dilatation predominating in the right ventricle, and hypertrophy with dilatation in the left. Much edema of the lower part of the body and legs existed. The whirring murmur was doubtless due to the communication between the two great arteries and the edema to the involvement of the right side of the heart. The immense area of shadow in Dr. Stover's Rœntgenogram (Neal, 1721) shows the extent of the aneurismal sac.

CASE III. Clark, male, fifty-six years of age, storekeeper.

No history of syphilis. For one year has been too feeble to work. He complains chiefly of dyspnea, weakness and swelling of legs and feet.

Upon stripping the patient one is immediately struck with the dilatation of the veins over the left upper quadrant of the chest and along the margin of the ribs. An enormous tortuous vein carries blood from the anterior surface of the upper left arm to the inner end of the left clavicle, and a net-work of veins in the area mentioned help to do the work of the obliterated left subclavian vein. The left arm is easily seen to be larger than the right, and it is cyanotic. Measurement shows it to be three-fourths inch greater in circumference than the right arm.



Arteries atheromatous. The heart area is slightly enlarged downward and to the left. A double souffle is heard at the aortic region. Corrigan pulse is present. No tracheal signs. Left eye is lost. Right pupil normal. The right radial pulsation occurs a little before the left one. Quite marked pulsation of whole left side, but not localized. No dullness made out. Lungs negative except for wheezing râles in back. Voice normal.

Blood-pressure, Stanton instrument, by Drs. Sewall and Hall. Right arm, systolic 200 mm.: diastolic 130 mm. Left arm systolic 190 mm.; diastolic 130 mm.

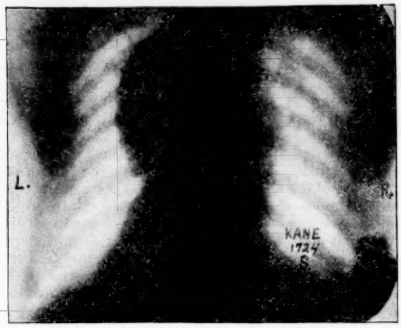
With the fluoroscope Dr. Stover finds a pulsating tumor, similar to that noted in the preceding cases. The diagnosis is practically the same, excepting that the only injurious pressure is apparently upon the left subclavian vein.

March 9, 1906. This patient is still around the streets and in fairly comfortable condition. Rœntgenogram (Clark, 1772) shows the shadow of the aneurism to the right and left of the central line.

CASE IV. Kane, male, waiter, fifty years of age. Syphilis at twenty-two years. Formerly worked hard and was rather a heavy drinker.

Two and a half years ago he became aphonic after a debauch. Since then dyspnea, cough, loss of flesh, weakness and inability to work have been noted.

Moderate dilatation of the left pupil has existed much of the time since I have had him under observation, now nearly two years. The left vocal cord has been in a cadaveric position during all this time. The arteries are quite atheromatous.



Dullness exists over a space two and a half inches across below inner end of left clavicle, and slight pulsation is felt through and through the chest at this point. No auscultatory phenomena. Heart slightly displaced to left, aortic second sound accentuated. Respiration is feeble on the left side and voice diminished. Marked tracheal tug and diastolic tracheal shock. Radical pulses equal and synchronous.

With the fluoroscope Dr. Stover finds a pulsating tumor in the region mentioned. The aneurism is probably like the others, situated in the transverse portion of the aortic arch. It has been almost quiescent for eighteen months past, and the patient has done light work during a part of this time. The sac is probably largely filled with fibrin, since the pulsation is much less marked than a year ago. The patient has been upon iodide treatment much of the time.

It is striking that he has had comparatively little pain during the whole course of the trouble. His blood pressure was below normal, but the exact figures have been mislaid. The urine was negative.

This patient lived in comparative comfort for about a year longer and died instantly from rupture of the aneurism. It was located, as mentioned, in the transverse portion of the arch, was about the size of the fist and was half filled with fibrin. It had ruptured into the very beginning of the left primary brochus. Extensive atheroma of the aorta was present. In Rœntgenogram, Kane, 1724, the very marked bulging of the aneurism to the left is well shown.

Aneurism is frequently overlooked because the signs and symptoms present such extreme variability, yet fortunately there are several manifestations of great weight to diagnosis, any one of which may excite our suspicions at once, and a careful search is likely to bring out confirmation in some form. We will study some of the prominent features of these four cases.

Pain was marked in one case, moderate in one, and little complained of in the remaining two. Even if bone be eroded it may be of little moment, or may cease after a pressure; neuritis gives way to complete destruction before the advancing tumor. It is more common in aneurism of the anterior and posterior portions of the arch, since bone is more often eroded in these varieties. Yet in a recent case in this hospital in which a large aneurism projected through the ribs and sternum there was no call for relief from pain.

Dyspnea was present in all the cases, and severe in two. It may depend upon laryngeal trouble, which Dr. Levy will describe more fully; upon pressure upon the trachea; upon one or both primary bronchi; or upon the pulmonary artery obstructing the flow of blood to the lungs, and consequently impeding aëration of the venous blood; or upon the general obstruction to respiration from the size of the tumor. Destruction of the lung after pressure upon the primary bronchus, so common upon the left in aneurism of the transverse arch, with the paroxysmal cough so often seen in these cases, and the necessity of expectoration under such disadvantageous circumstances, may make the dyspnea more severe than it otherwise would be.

Cough was a feature of the two cases in which aphonia from paralysis of the left recurrent laryngeal nerve was present, the usual "goose-cough" of laryngeal paralysis. Choking spells were noted in these two patients.

The left pupil was dilated in Case IV, from irritation of the sympathetic upon that side. We should expect this symptom to be relatively more frequent in a large number of cases.

Weakness was complained of by all four patients, being the chief feature in two histories.

Edema of the feet and legs was notable in one case and slight in one, without recognizable kidney disease. It was probably accounted for in Case II by the communication of the aneurismal sac with the pulmonary artery and embarrassment of the venous return. In Case III, no cause beyond general weakness was found. It did not seem in either case that the inferior cava could have been pressed upon, as in certain cases of aneurism.

The heart was displaced to the left in every case, slightly in Cases III and IV; one inch to left of nipple in Case I, and two inches to the left in Case II. The latter patient had a marked systolic murmur at the apex, well transmitted to the left, and the apex beat was in the seventh space. Systolic thrill, common when the pulmonic artery is perforated, was noted all over the heart, obscuring other sounds greatly. The presence of marked pulsation in the neck and notable Corrigan pulse with the increased perpendicular area of the heart dullness led me to consider aortic leakage almost a certainty in spite of the absence of an audible diastolic murmur. The post-mortem evidence would indicate the leakage to have been due to relative incompetency. Aortic diastolic murmurs were found in Cases I and III, but Corrigan pulse was present only in the latter. The frequency of aortic leakage in aneurism is generally recognized.

The aortic second sound was accentuated in Cases I and IV, in spite of the fact that regurgitation existed in the former case. The leakage here was presumably insignificant. Systolic souffle

over the region of the aneurism was present in Case II, already mentioned, in most marked degree, and in Case I, in lesser degree. In Case III, over the aortic area, a diastolic murmur was also present, as noted above, and enlargement downward and slightly to the left was noted.

Through-and-through pulsation, a most conclusive sign when found, was present in all four cases. The absence of an external pulsating tumor in all of these cases made this sign the more valuable. In certain cases the movement of the anterior hand seems to be more easily seen than felt. I have never found this sign present in mediastinal tumor.

Marked tracheal tug was noted in all but Case III. If at all marked it is of great value. It is probably never present in marked degree in mediastinal tumor, though in its lesser degrees it is frequently found in full inspiration in those with pleural adhesions or even in normal subjects. It must be decided to be decisive, and when well marked must be regarded as of much value even by those who present many reasons against regarding it as pathognomonic.

Diastolic shock, felt over the tumor, has long been regarded as one of the most certain signs, especially in deciding between aneurism and solid tumor. When an external tumor exists, and notably in aneurism of the ascending arch, it is frequently one of the two or three most valuable signs. In an article in the *American Journal of the Medical Sciences*, January, 1900, Dr. Hall called attention to the value of tracheal diastolic shock as manifested in the trachea, and particularly in aneurisms of the transverse portion of the arch. The downward pressure of the expanding sac upon the left bronchus here frequently gives the tug mentioned above, and in at least half the cases we may perceive, as in Cases II and IV, the transmission of the shock of closure of the aortic valves, as a distinct diastolic shock transmitted to the cricoid cartilage, and felt by the finger instantly after the tug. It has been present in some of my cases when the tug was so indistinct as to be of no value. I have never found it present, excepting when the signs and symptoms pointed to aneurism. In at least four cases of solid tumor it was notably absent. So far as my experience of seven years goes I must regard it, when decided, as a certain sign of aneurism. I have long believed that, with a knowledge of this sign and of the tracheal tug, an agreement as to diagnosis might have been reached by Skoda and Oppolzer over their long-fought case.

The left radial pulse was absent in Case I, and slightly delayed in Case III. In this latter case the systolic pressure on the left was 10 mm. less (190) than on the right (200), though the diastolic pressure, as taken by Dr. Sewall, was (130) on each side. In the other cases the blood pressures, systolic and diastolic, were normal or but little below normal, and equal upon both sides.

Dullness was present in Case I over the manubrium and inner end of left clavicle, in Case II over upper sternal region only, in Case IV over inner end of the left clavicle only, and none was made out in Case III. It is a notable fact that even in large aneurisms no dullness is found in a certain number, for the sac is so centrally situated that the wall of the chest is not affected. O. A. Browne has analyzed 35 cases of aneurism of the transverse portion, in only four of which did the tumor show to the left of the center, so that our cases are probably rather exceptional in showing the dullness to the left in two cases out of four.

In Case IV only were the respiratory passages notably involved, the left bronchus being pretty well shut off in this one. Death resulted, as noted above, from rupture into this bronchus, as so frequently happens in these cases.

Pulsation was felt in the notch of the sternum only in Case II.

Dysphagia was conspicuously absent. It is more common in aneurism of the descending portion. A pulsating tumor was found by Dr. Stover in every case. The x-ray is of immense value for diagnosis in this disease. Dr. Stover recently showed a case at the Staff Meeting of the Denver City and County Hospital in which an aortic aneurism was found in a case about to be operated for prostatic hypertrophy, and which had been sent to his department entirely by mistake. (See Sherman, 2198.) No other sign or symptom could be found by any of the staff, yet the shadow to the left was unmistakable. This diagnosis has since been confirmed.

Syphilis was admitted in Case IV, was almost certain in Case II, and was denied in Cases I and III. Palpable atheroma was present in all but Case II, and no note was made in his case.

Notable venous obstruction was present only in Case III, in which the left subclavian vein was obliterated by pressure. No especial trophic changes were noted in the left hand, such as thickening of the skin of the palm and of the nails, as in a recent case of mine, though they may yet develop.

No one of these patients showed the enormously thick neck, scarcely mentioned in the literature, yet so characteristic of certain types of aneurism, notably of the ascending aorta, from obstruction of the superior vena cava. In a recent case seen with Dr. Matt R. Root, of Denver, presenting this sign, the eyes were so swollen as to become closed, the right arm was visibly larger than the left, and the trophic changes in the hand were present. The dilated veins over the chest and abdomen shown in the accompanying illustration (No. 1) finally established so good a collateral circulation that the patient was able to resume work for about two years, eventually dying of rupture of the sac. The entire venous blood normally flowing through the vena cava superior was apparently carried to the heart by the inferior vein in this case.

Neither pallor from irritation of the sympathetic nor flushing from paralysis was noted in these cases. Both may be present in the same case, upon opposite sides at the same time, as in a case seen by me with Dr. H. W. Rover, of Denver, in

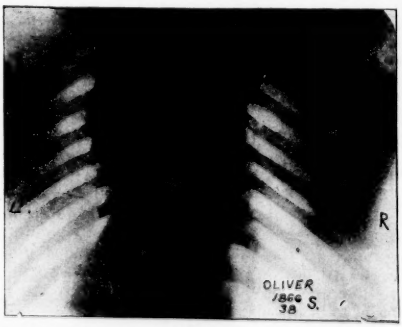
which the right ear and side of face were extremely red with contracted pupil, the tumor having presumably destroyed the last cervical or first dorsal sympathetic ganglia or both, or the cilio-spinal branches, by pressure, while the left ear and cheek were very pale, extreme sympathetic irritation upon that side being the cause.

There was no evidence of involvement of the thoracic duct in any of these cases.

It is possible to have the pressure of the sac so distributed as to cause the most puzzling combinations of signs and symptoms. Thus in a case now in the service of Dr. Chas. A. Graham, at this hospital, the left vocal cord is paralyzed, the right radial pulse is obliterated, the veins of the left arm obstructed as in Case III, and the lumen of the left bronchus is apparently almost obliterated by pressure. The heart is displaced two inches to the left. Tubercle bacilli are found in small numbers in the sputum, though there are no known tuberculous antecedents. The Roentgenogram (Peel, 2277) shows the shadow of an aneurism on the right side, according to the rule as found by Browne, above quoted. The pressure of the aneurism is distributed in a most unusual manner. The left bronchus may possibly be pressed upon by a tuberculous gland and not by the aneurism.

In Case IV, the first symptom was the aphonia, coming on as he recovered from a spree. The onset was gradual in all of the others. In a case seen some years ago with Dr. C. P. Conroy, the aneurism of the transverse arch developed in a few hours after a violent lift, in a man of thirty-eight years. Rupture of the media was found at the post-mortem, doubtless caused by the sudden strain.

In a case recently seen with Dr. Hershey, we were long in suspense as to the diagnosis between aneurism and enlarged bronchial glands following an attack of pneumonia. Profuse expectoration containing many pneumococci, and

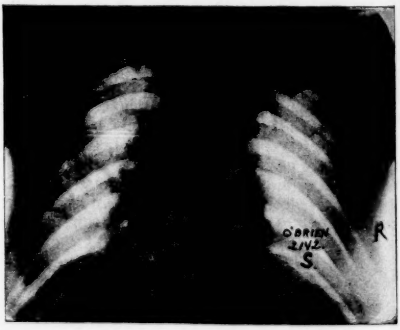


terrible suffocative attacks, were prominent features. The latter were explained at the post-mortem by the presence of a perforation of the trachea by an aneurism of the transverse and descending portions of the arch of the aorta. A mass of large, firm, black bronchial glands, some of them over an inch long, was found anterior to the sac, while a condition of aneurismal phthisis existed in the left lung. In similar manner I



have seen aneurism of the aorta and cancer of the esophagus present in the same case, giving rise to the utmost confusion of symptoms. We should remember the possibility always of two separate conditions in such cases.

In addition to the illustrations of the cases cited, Dr. Stover presents several other Roentgenograms: that of "Oliver, 1866," showing a large aneurism of the more common type. "Fucht, 2199" is



shown on account of the very large size of the tumor. That of "O'Brien, 2142" shows the shadow high up and to the right.

The treatment in all these cases has been by rest, low diet and the giving of iodide of potash over long periods. None was suitable for wiring, electrolysis or other surgical measures.

BY DR. LEVY.

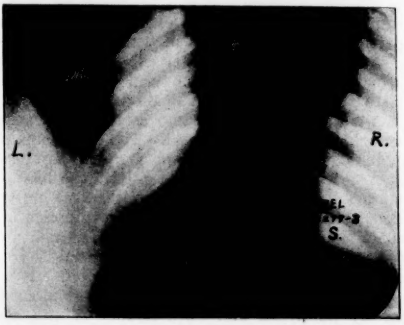
As you may have gathered from what Dr. Hall has stated, the diagnosis of aneurism of the aorta is not always easy. Careful examination of the larnyx will frequently clear up the diagnosis, and

in any event will be of decided value. Certain points in the anatomy and physiology of the larynx must be carefully borne in mind. Its two important functions are those of respiration and phonation. The respiratory function of the larynx is made possible by the action of the posterior thyro-arytenoid muscles, which abduct the vocal bands, while the function of phonation is made possible by the lateral thyro-arytenoids, which adduct the vocal bands assisted by other less important adductors and tensors. The nerve supply of the larynx is principally the superior laryngeal and the inferior or recurrent laryngeal branches of the pneumogastric. The latter concerns us more especially in this connection. An anatomical feature of great importance is the course that the pneumogastric and the recurrent laryngeal take upon the two sides of the neck. Upon the right side the vagus passes in front of the subclavian and the recurrent given off upon this side passes the subclavian artery, returning upwards in a groove between the esophagus and



trachea to its laryngeal distribution, which included all of the intrinsic muscles of the larynx upon that side except the thyro-arytenoid. Upon the left side the pneumogastric passes in front of the transverse arch of the aorta, at which point the recurrent laryngeal is given off to pass beneath the arch and upwards in a groove corresponding to that upon the right side, to its ultimate distribution in the larynx, namely, all the intrinsic muscles of that side, except the thyro-arytenoid. It is apparent from the course of these nerves and their distribution, that an aneurism of the arch of the aorta would produce pressure upon the left pneumogastric, the left recurrent laryngeal or both, while pressure upon the right pneumogastric or recurrent laryngeal will be produced by an aneurism of the subclavian. These are not the only conditions which may produce disturbance of the recurrent nerves, for tumors of various kinds situated in the course of the pneumogastric, in the neck or of the recurrent laryngeal will also give rise to disturbance in the function of these nerves.

The first laryngeal symptom of aneurism refers to the respiratory function of the larynx. There is a moderate amount of dyspnea, marked, however, upon exertion. During rest and tranquil respiration there may be detected a slightly noisy inspiration. This symptom is due to a paralysis of the respiratory muscles of the larynx, namely,



the posterior crico-arytenoids. These muscles abduct the vocal bands, thus enlarging the chink of the glottis and permitting the air to pass freely through the larynx. When these muscles are paralyzed upon one side, the adductors having no antagonist in their action hold the vocal band of that side in the median line. This fact accounts



for the almost normal voice in the early stage of recurrent paralysis. The reason that the abductors are first affected is a much mooted question, but the majority of laryngologists have accepted the explanation of Sir Felix Semon, which he formulated a few years ago in what is known as Semon's law. This author believes that there is a "difference in the biological composition of

the laryngeal muscles and nerves," which makes the abductors more susceptible and causes the symptoms of slight pressure to manifest themselves in the nature of interference with the respiratory function.

In a certain proportion of cases the stage during which the abductors alone are involved is extremely short or does not exist at all. This is particularly true of cases in which the enlargement of the aorta occurs itself suddenly or is principally in the anterior wall of the aorta. Here the pressure is made almost complete at once and involves the pneumogastric as well as its branch, the inferior laryngeal. The symptoms of increased pressure are those of complete paralysis of the recurrent laryngeal, namely, the loss of motion of all of the intrinsic muscles of the larnyx except the thyro-arytenoid. These muscles include the adductors, the principal of which are the lateral crico-arytenoid, the internal thyro-arytenoid, the tensors, and the arytenoid. It is obvious, therefore, that when the nerve is completely paralyzed and both abductors and adductors fail to act, that the vocal bands be neither abducted nor adducted, nor will they be made tense, but will rest in a position midway between abduction and adduction and be lax. This position of the vocal bands is what is known as the cadaveric position.

The dyspnea in the case of Kiler may be explained either by pressure on the trachea or bronchi, or it may be due to so pronounced a pressure upon the pneumogastric that the irritation is transmitted to the center in the medulla, then to the opposite side, causing spasm of the opposite abductors. In this way pressure upon one pneumogastric will cause marked bilateral manifestations, especially giving rise to laryngeal dyspnea.

It is important to recognize whether that dyspnea be due to this cause or to pressure upon the trachea or bronchi. If due to the former, tracheotomy will relieve the urgent distress, and if due to the latter, opening into the trachea will be of no avail.

As has been seen in the case of the man Kane, the voice while aphonic from the beginning has gradually improved. This is not an uncommon manifestation, but should not be construed to mean improvement in the actual condition. One vocal band may be completely paralyzed, remaining midway between abduction and adduction, while the other in course of time takes on compensatory action and passes beyond the median line to closely approximate the paralyzed band. When this exaggeration of the unparalyzed vocal band takes place, the voice begins to return, and while the patient will never have a normal voice, he will nevertheless be able to phonate better than early in the affection. There is marked distress during prolonged phonation due to what might be called respiratory loss. The chink of the glottis being larger than normal every act of phonation permits an increased loss of breath and the patient becomes rapidly exhausted in an attempt to use his voice.

AN ANALYSIS OF TWENTY-ONE CASES OF PELVIC ABSCESS TREATED BY VAGINAL SECTION.

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THE following article has for its object the consideration of 21 cases of vaginal section for pelvic abscess in which the end results are known. They have been collected from the cases treated at the Boston City Hospital and from private practice. Hospital records show the immediate results of operation; but as a rule our patients disappear at once on leaving the wards or after a few visits to the Out-Patient Department. For this reason the end results are seldom apparent.

The responses to our requests for information from hospital patients have been few, as out of about 100 inquiries, only 13 replies have been received. All have been examined personally; but in speaking of the end results, four are mentioned from whom reports have been received. It must be borne in mind that the impression conveyed by such a series of hospital cases is often really worse than the actual truth, as many are traced after discharge, only from the fact that they have improved slowly. The greater number of those making good recoveries disappear.

The " end results " we have considered as the condition of patients at the time when the maximum benefit from the operation was apparently attained. In one or two instances it may be considered a little doubtful whether they have quite reached this stage; but in general, we believe this period has been reached.

General Considerations. — Vaginal section for the evacuation of collections of pus in the pelvis has long been recognized as an operative procedure having less danger in acute stages than ordinary abdominal section; but at the same time, opinions have varied as to the lasting results obtained by this method alone.

The bacteriology of the pelvic abscess is often unsatisfactory, as there are numerous accidental means by which a swab may be contaminated, and, furthermore, many are reported sterile. Any classification on a purely bacteriological basis seems impracticable.

In a clinical sense, these abscesses may be divided into three classes: first, those arising shortly after gonorrheal infection; second, those which appear at some more or less distant period after gonorrheal infection; third, those following puerperal sepsis. Regarding the second class, we must allow that such abscesses may be due to the lighting up of old quiescent foci or a new infection by a different organism, regulated more or less by the resistance of the individual and started, perhaps, by some traumatism. The rare infections from the appendix and tuberculosis are not considered. Certain of the acute gonorrheal cases progress at once to abscess; but many do not go so far, and leave in their wake lasting discomfort, pain and repeated attacks of pelvic peritonitis. Often the amount of pus

present is small. After more or less frequent disturbances or a long period of seeming immunity, suddenly an abscess develops, either confined to tube and ovary, or to a limited part of the pelvis. This is the type in which we believe a secondary infection occurs, often with a different organism, even if as yet we are unable to prove it to our satisfaction bacteriologically.

In the third class, the infection (often streptococcus) comes as the result of miscarriage or childbirth and travels to the peritoneum by way of lymphatics or tubes, or both. Frequently in these cases we find the tubes have suffered comparatively little injury, and the collection of pus is localized in the broad ligament, or, very often, is apparently an infected peritoneal secretion which has gathered in Douglas' pouch. If seen early, the serum poured out may have undergone no change, and on vaginal section, we find perhaps a pint of clear or slightly turbid fluid. After a time it has the ordinary appearance of pus. These patients do well when such fluid collections are drained, and the temperature will promptly fall. They also recover with very slight signs of any previous trouble; although the exudate may be considerable.

Another contrast exists as regards adhesions. In the third class they are light and friable, while in the first two they are more firm, especially in the second class.

This seems due to something more than chronicity; as in a number of abdominal sections, where the infection was known to be from the common pus organisms, the adhesions have been light and entirely different from those of known gonorrheal infections of apparently the same duration. It is also very noticeable that in the third class, the abscess may increase rapidly in size, and occasionally ruptures, with disastrous results, from this want of adhesions. It follows, therefore, that masses in the pelvis, after childbirth or miscarriage, should receive very careful attention. The second class runs a more chronic or subacute course and, in the main, gives abundant warning before rupture takes place.

Age.— Most pelvic infection occurs during the child, bearing period, but in the one case, which was over fifty years, the abscess healed promptly, although the general condition was poor.

Probable cause. — The probable cause of the infection was: Puerperal sepsis, 8; gonorrhea, 9; unknown, 4.

Puerperal sepsis, especially after induced abortion, and gonorrhea, are the principal causative factors of pelvic abscess; although in certain instances, neither of these seems to blame. The writer has seen one large pelvic abscess arise from a tubercular tube. We know that abscesses of Bartholin's glands occasionally develop in uncleanly persons, and some German writers have claimed the sepsis after labor is due oftentimes to coitus shortly before delivery. In some hospitals the subject is always inquired into at entrance. The fact that pelvic adhesions are occasionally formed in individuals where there seems to have been no previous coitus, may allow us to grant that very rarely such an abscess may develop "idiopathically."

One of our own cases, who underwent two vaginal sections for pelvic abscess, never had any symptoms of gonorrhea and was never pregnant. The culture from the abscess at the first operation showed staphylococcus pyogenes albus; that of the second was sterile. A second case of similar nature gave a negative result.

Puerperal sepsis and gonorrhea appear from our returns to give rise to pelvic abscess in equal proportion. In 6 cases, the infection was undoubtedly gonorrheal in character and probably so in three others.

There is only one reported culture from these 9 cases and that was sterile. Of the eight abscesses which resulted from puerperal sepsis, four were reported as streptococcus infections, and three sterile.

Duration of symptoms. — In the gonorrheal cases, the symptoms may be roughly divided into two stages: premonitory and acute.

The premonitory stage consists of the period during which there is discomfort or pain, either continuously or at intervals. This period is usually well marked and of variable time.

The bulk of the gonorrheal have had symptoms from one to two months before acute attacks set in.

Two of these cases have had abscesses form after a considerable period of time had elapsed since the venereal disease was contracted. One case, in which the time of infection is definitely known, was in very good health for two years before the acute symptoms appeared. Another enjoyed fair health for many years before the abscess formed. It seems to me reasonable to suppose that such accidents may be due, as has been stated before, to the reinfection of damaged tissue through blood or lymphatics. This might be brought about by any traumatism in tissues whose resistance is already weakened by previous inflammation. Of course the health of the individual would also have a marked influence. The new infection with a different organism seems more plausible than an old quiescent focus, as the virulence of most pus-producing organisms becomes much attenuated and the organisms often disappear altogether.

After puerperal infections, in many of which we know the exact date of induced abortions, there is often the same premonitory stage. Among those on our list it has varied from four days to ten years, but is usually of two to three weeks' duration. The longer period mentioned would seem to indicate a second infection.

The acute stage in the gonorrheal has varied from five days to five weeks, averaging about two weeks before operation became necessary.

With the puerperal cases, nearly all of which were streptococcus infections, the time elapsing from the acute onset to the time of operation varies from four to twenty-one days, with an average of about ten days. This is a much more rapid development than in the gonorrheal infections. It is in the puerperal cases that ad-

hesions form slowly and are very frail, while the abscesses increase very rapidly. In the case in which operation became necessary on the fourth day after miscarriage, a large amount of serum was evacuated.

Condition of pelvis at time of operation. — It is difficult to summarize the condition of the pelvis, as in most instances the structures were so obliterated by adhesions and exudate that it was impossible to tell whether the pus came from an enlarged tube alone, an abscess cavity with which the tube connected, a collection of pus in Douglas' pouch, or an abscess in the broad ligament.

As a general statement it can be said that the amount of pus evacuated from the abscesses forming after puerperal sepsis was about equal in amount to that from those women known to have been infected with gonorrhea within a short time.

The connective tissue of the pelvis was filled with exudate in all cases, and it seems impossible to tell to just what extent the appendages were involved; but from the findings at other laparotomies, it would seem probable that both sides were more or less involved, although the abscess may have been more directly connected with one or the other. In one case with no apparent cause of infection two sections were performed, two years apart, for abscesses which formed first in one tube and then in the other. The writer has also operated upon one gonorrheal case in which the sections were separated by an interval of about two weeks.

Five acute abscesses after fresh gonorrhea appear to have been confined principally to one tube. The abdomen was opened in one of these, after the acute symptoms had subsided, and the damaged tube removed. The abscesses have pointed behind the cervix with one exception. Two of the cases have been treated by laparatomy after the initial operation, — the case mentioned above, and one other, — which developed an abscess between the peritoneum and abdominal wall, above the bladder. In two, the anterior wall of the rectum sloughed.

End results. — The sinuses have healed quite promptly in most instances, especially in the acute gonorrheal abscesses. The shortest time recorded is six days, and the longest, five weeks. The puerperal infections have not shown quite equal speed. One has discharged for four months and perhaps this case can hardly be considered an end result. Of the two patients with sloughing of the rectal wall, and both having recto-vaginal fistulæ, one sinus persisted two and one half years, until death caused by an operation for its closure; and one healed inside a month.

The time elapsed since operation in the cases seen and examined is: Less than six months, 4; between one to two years, 8; between two to three years, 6; between three to four years, 2; between four and five years, 1.

Of patients examined under six months from date of operation: One was seen five months; 2 at four months; and 1 three months after section. All were of puerperal origin. The case operated five months ago, still has some mild attacks of peritonitis from time to time, and there is exudate in the pelvis on one side. This woman, on account of home conditions, has been unable to give herself proper care. She has some pain with menses; but has gained twenty pounds since leaving the hospital, although she was extremely sick while there, losing sixty-five pounds.

The two cases seen four months after operation have painless catamenia and suffer none. In one, there is a retroverted uterus with two small tubo-ovarian masses adherent. The whole is movable. In the other, there is a retroverted uterus with a small mass at one side. Both uterus and mass are free.

In the single case observed at three months, there is still an indurated mass in the left broad ligament. The uterus is in good position, freely movable, with no tenderness.

Of the cases seen between one and two years after section, two, with abscesses of unknown origin, are in good health. One of these has slight pain at times, and examination is negative; the other has no discomfort, but a slight thickening behind the uterus.

Of the probable gonorrheal infections, four in number, three report slight pain occasionally. One of these has a small mass on one side; two have adherent retroversions of second degree; and one has a slight thickening on both sides, but the pelvis otherwise negative. The two cases with second degree retroversion have pain with the catamenia.

The cases (2) of puerperal sepsis have no pain, and the pelves seem practically normal.

Six women have been examined from two to three years after discharge. One, origin of abscess unknown, has slight pain at times, an adherent tube in the pouch of Douglas, and slight pain at the monthly period.

One severe case of pelvic infection has gained sixty pounds, has no pain at any time, and it is possible to find but a slight thickening of the broad ligaments.

Of four probable gonorrheal infections, one has slight pain at catamenial period; one, no pain since the operation; one, pain until the appendages on left side were removed by laparatomy, since which time she has had perfect health.

The fourth case in this group is the only one resulting unfortunately. This has been mentioned previously. About a week after the vaginal section, the anterior wall of the rectum sloughed and a recto-vaginal sinus appeared which also connected with the large abscess cavity. Later a laparotomy was performed to drain a pus cavity between peritoneum and abdominal wall above the bladder. She was in poor condition at the time of each operation, thoroughly septic, and barely lived.

The second abscess cavity finally connected with the one in the pelvis and a sinus formed in the abdominal wound. Both sinuses refused to heal, although all means were tried. She was finally operated upon two and one-half years later, and died from shock. During the interval

between her discharge from the hospital and the final operation, she enjoyed very fair health. The outlook was desperate from the start.

Two women reported between three and four years after operation. The first is perfectly well and the pelvic examination is negative. This infection was undoubtedly gonorrheal. The second was again admitted to our wards a short time ago, with a large exudate behind the uterus; but by rest and depletion, operation was avoided. She considered herself as perfectly well until three weeks previous to entrance. The original septic process started from a miscarriage, and it seems rather probable that the second infection was of a different nature.

Only one patient has reported after four years, a probable gonorrheal infection. She declares herself comfortable. At the time of leaving the ward, her weight was 86 pounds. It is now 140 pounds. The uterus is quite firmly fixed in the pelvis, and in good position. There is a slightly movable tubo-ovarian mass on one side, an old vaginal scar on the other.

In none of our cases has pregnancy occurred since the operation.

Four report themselves as in good health after periods of from six months to two years; but the data concerning them are insufficient.

Conclusion. — Our cases, few in number, show this operation gives what appear to be good results. One has died, not as the result of the operation itself, but because of an effort to correct the consequences of an operation upon a metastatic abscess.

Two other unfavorable results are reported: one finally cured of pain by removal of one tube and ovary; the other still with some pain and exudate, owing principally to lack of proper care.

Thirteen on our list are free from pain, and four others, reporting by letter, claim to be well. The remainder have some pain at times, but the discomfort is apparently slight, even if some exudate, thickening, or tubo-ovarian masses remain. It will be noticed, also, that with exudate there is not always pain or even tenderness. If we could compel our patients to follow after-treatment with care and enable them to accept the opportunities offered for rest, the results would be far better.*

A NEW OPERATION FOR CORRECTION OF THE NASAL SEPTUM.

BY ROCKWELL A. COFFIN, M.D.,

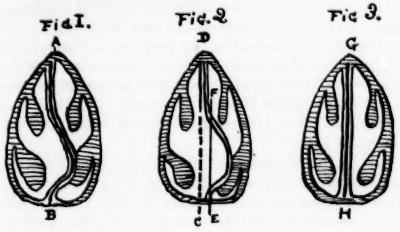
Assistant in Laryngology, Harvard Medical School; Clinical Assistant in the Throat Department of Massachusetts General Hospital; Surgeon for Diseases of the Throat, Boston City Hospital.

Perhaps the most objectionable feature of the present submucous "window operation" is the length of time it requires to perform it, together with the strain on both patient and operator. Both of these disagreeable features are overcome by the operation herein described.

*The writer is indebted to Dr. D. D. Scannell for details of some private cases.

In the usual operation, after separating the mucous membrane and perichondrium from one side of the septum, it is often very difficult to free the opposite mucous membrane through the septum without causing a perforation. This part of the operation is also most fatiguing for both patient and surgeon.

The author's operation is divided into two short sittings, which many patients are able to tolerate, rather than one long one which is exceedingly nerve racking and even quite impossible for the more sensitive.



It is not suggested that this operation take the place of other "window operations," but rather it is one to be used when the conditions are unfavorable for prolonged surgical procedures. The author can, perhaps, best explain the technique by describing the first case operated on, as it was typical of those cases for which this operation is especially adapted.

On examination of the nose, the septum was found deviated as in Fig. 1, that is, the cartilaginous septum was in contact with the lower left turbinate. Only a small piece of the bony septum was involved. A more or less perpendicular incision was made in the right nostril anterior to the deviation, after first applying cocain and adrenalin, and sterilizing the cavity with a weak solution of corrosive sublimate.

The periosteum elevator was then introduced through the incision beneath the periosteum and perichondrium and worked backward, upward and downward, until they were free from the septum as far as the edges of the deviation. The space thus made was injected with sterilized vaseline, and the nose allowed to heal for one week. It may be seen that the mucous membrane and perichondrium, instead of following the line of the septum as in Fig. 1, were held away from the septum by the vaseline and took the line C D, as in Fig. 2.

After one week the opposite side was prepared for operation in the same way as the first, and an incision similar to the one on the right side, only somewhat more anterior, was made. This last incision was made more anterior in order that it would not come opposite the other and increase the liability to perforation in case the first was not entirely healed. In the same way as before the perichondrium and mucous membrane were separated from the septum. With the mucous membrane and perichondrium on the right, tak-

ing the direction C D (Fig. 2), we had the simple problem of removing a submucous spur. This was accomplished by the use of a straight, blunt knife, and the author's submucous gouge. A light pledget of antiseptic cotton was then introduced into the left nostril and drawn forward in order to hold the perichondrium and mucous membrane in the median line. Fig. 3 represents approximately the position of the septum at the end of the second half of the operation.

This was allowed to remain about twenty-four hours, when it was removed, and the nasal cavity irrigated with a very mild antiseptic solution. The patient was given a wash of Dobell's solution and mild citrine ointment to use twice daily.

Where the deviation is long and narrow the author has obtained excellent results by treating the second part of the operation as a simple spur, and has removed it with the saw. This not only saves time, but the result, in most cases, is quite as satisfactory.

It is the author's opinion that in doing this operation, one is more likely to obtain true cartilage in the new septum than in the usual "window operation," for the reason that both cartilage cells and perichondrium are present during the time intervening between the first and second operations. Time alone can demonstrate if this is a fact.

New Instrument.

GASTRO-ENTEROSTOMY IN INFANTS. A NEW INSTRUMENT.

BY CHARLES L. SCUDDER, M.D., BOSTON.

IN those cases of stenosis of the pylorus in infancy, which come to the surgeon for operation, it is important that technical difficulties be eliminated so far as possible from the chosen procedure. The operation to be successful must be performed with speed, the handling of the gut must be reduced to a minimum. A gastro-enterostomy (posterior) is the operation of choice in these cases.

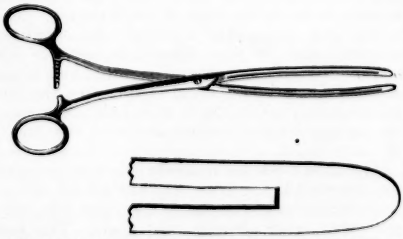


FIG. 1. Baby clamp for gastro-enterostomy. Rubber covered when in use.

I have had made for me, by Codman and Shurtleff, a clamp similar to the gastro-enterostomy clamp for adults, but much smaller. (See Fig. 1.) This "baby clamp" is slender and very light, it is well adapted to facilitate the technique of the rather delicate operation of gastro-enterostomy in young babies.

GASTRECTOMY. A NEW INSTRUMENT.

In the operation of partial gastrectomy following the most satisfactory technique, perfected by Hartmann and Mayo, Kocher's crushing stomach clamp is applied to the portion of the stomach

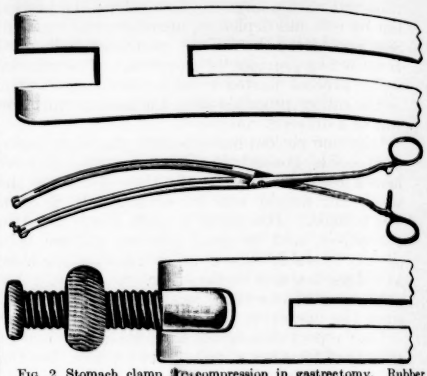


FIG. 2. Stomach clamp for compression in gastrectomy. Rubber covered when in use.

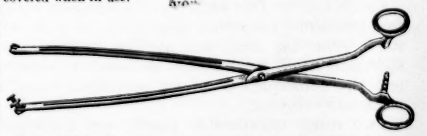


FIG. 3. Stomach clamp for compression in gastrectomy. Straight instrument. Rubber covered when in use.

to be excised. In order to control the portion of the stomach left behind, a clamp to compress without crushing is needed. Kocher's clamp, covered with rubber tubing, is sometimes used for this purpose, but the bite of this instrument is too powerful. I have had made an instrument similar in shape to Kocher's which, when rubber covered, very effectually compresses the stomach walls without damaging them. (See Fig. 2.) A straight pattern of this instrument has also been made. (See Fig. 3.)

The clamp is simply constructed, the appearance of the lock at the tip of the two blades is accurately shown in the accompanying drawings. (See Fig. 2.)

In order to prevent any retraction or slipping of the compressed stomach walls from between the rubber covered blades of the clamp it is wise to catch the projecting edges at two or three points with ordinary hemostatic forceps. The application of these forceps precludes the possibility of slipping of the stomach before the occluding sutures are placed. The employment of this clamp adds much to the ease of gastrectomy.

THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE is at present engaged in extending its plant by the erection of a building to the east of the present property, which will be devoted entirely to the out-patient department. — *New York Med. Jour.*

Reports of Societies.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, Wednesday, Dec. 5, 1906, at 8 P.M.

The President, Dr. Arthur V. Meigs, in the chair.

CASES ALLIED TO AMAUROTIC FAMILY IDIOCY APROPOS OF TWO PATIENTS, ONE OF WHOM PRESENTS AMONG OTHER STIGMATA POLYDACTYLISM OF FOUR EXTREMITIES.

Dr. A. Gordon exhibited two patients who presented the following peculiarities: Blindness dating from infancy and mental weakness; both are Hebrews of Russian extraction and are brother and sister. The eye examination shows optic atrophy with unusual redness in one of them, suggesting the findings in Fay-Sachs' disease. The clinical manifestations of both cases are highly suggestive of amaurotic family idiocy. These two cases, also others reported by various authors, especially by Spielmeyer, lead logically to this view, that amaurotic family idiocy presents varieties and subvarieties. As to their pathogenesis, Dr. Gordon expresses the opinion that the ductless glands are probably inherently deficient and produce the cell changes found in all cases of this affection. Both patients presented also a number of stigmata of degeneracy, among which polydactylism of the four extremities in the brother was the most curious and unusual.

Dr. F. X. Dercum was in accord with Dr. Gordon that in the disease of amaurotic family idiocy there were at work a morphological factor with all the signs of arrested development, and a process of chronic auto-intoxication. Regarding the studies which have been made and in which it has been stated that the behavior of the nerve cells suggests the action of a poison, he thought a very plausible explanation was that this poison is produced in the body and has resulted in some grossly defective metabolism or faulty action of persistently abnormal ductless glands.

Dr. Howard F. Hansell, in speaking of the eye examination, said there was presented the appearance of an absorption of the choroid in places and in addition some typical signs of high myopia. The condition of myopia, however, he believed secondary to the more marked eye condition. The cases seen by Dr. Hansell prior to the ones exhibited had terminated fatally at an earlier age.

Dr. Walter L. Pyle, from his examination of the records of such cases, said there were very few in which there was such perfect specimens of polydactylism as in the case presenting the six fingers and six toes of the four extremities.

SYMPTOMS AND SIGNS IN URINARY LITHIASIS.

Dr. Charles Lester Leonard said that as the result of the study of 352 cases of suspected urinary lithiasis calculi had been detected in 71 cases in which the accuracy of the Rœntgen method had been confirmed by the recovery of the calculi. Of these cases 42 were ureteral calculi, and in 28 of these cases the calculi had been passed on expectant medical treatment based upon the accurate Roentgen diagnosis and the study of the symptoms and signs.

His study of the symptoms and signs showed that it was impossible to differentiate calculus disease from other intra- or extra-ureteral and renal conditions without the Rœntgen method; that this method should be employed in every case, since it cleared the field by detecting or excluding calculi; that the symptoms and signs were of particular value in studying the question of treatment; that the indications were dependent upon the size of the calculus and the symptom complex; that the detection of a calculus by the Roentgen method did not always form an indication for operation; that a differentiation can be approximately made between ureteral and renal colic, and also between involvement of that portion of the ureter above and that part below the uretero-iliac junction. Ureteral calculus in the juxta-vesical portion of the ureter produces symptoms very closely resembling vesical calculus. While the presence of an undetected calculus may be a grave danger and a menace to the integrity of the kidney, as soon as its exact size and location are known that menace ceases, unless there are symptoms present indicating progressive impairment of the function of the kidney. In every case, therefore, presenting suspicious symptoms he believes it essential to the preservation of the integrity of the kidney to determine whether a calculus is present or not; if present, whether it is occlusive, or if it has passed into or out of the bladder. Without the accurate knowledge obtainable in such cases by the Rœntgen method he showed that the patient is in grave danger, as all symptoms may subside and yet most serious injury result by complete occlusion of the ureter and the consequent atrophy of the kidney. In none of the cases with diseased kidneys has any symptom ever arisen indicating a systemic injury as the result of the Rœntgen examination.

Dr. John H. Gibbon referred to five recent operations for ureteral calculi and of their difficulty of diagnosis.

Dr. James Tyson spoke of the cases simulating stone in the kidney. In such cases had been found adhesion of the capsule of the kidney to the substance of the organ and to the neighboring fat and tissues. Relief usually followed the stripping up and pushing back of the capsule of the kidney.

Dr. Robert N. Willson referred to a case which Dr. John B. Roberts had seen with him in which the question arising was whether there was stone in the kidney or a floating kidney. This question had not yet been determined. The x-ray had showed entire absence of any concretion in either ureter or kidney. There were periodic attacks of pain typical of renal colic. Pus and blood would appear and disappear. An explanation of such cases suggested by German writers was the transmission of a nervous condition, probably through the splanchnic plexus to the bowel. Dr. Roberts' opinion had been that the case was one of pure and simple neurasthenia. Further reference was made to a case in which two x-ray plates had failed to show stone, but in which operation had revealed stone in the kidney.

Dr. John B. Roberts thought that in women Kelly's method of passing a small ureteral bougie covered with wax up into the ureter, and seeing on withdrawal if it is scratched by a stone, might at times be of great service. This, however, required great dexterity which many do not possess.

Dr. Leonard in closing said he had had a number of cases in which he had been able to detect the presence of pus in the pelvis of the kidney. The pus had been withdrawn and the kidney washed out with subsequent cure. In a number of cases of suspected stone relief of symptoms had followed the x-ray exposure, showing, of course, a mental cure rather than physical. In the 350 odd cases he had examined for suspected stone in which the kidney was the seat of the disease, there had been no evidence of deleterious effect from the exposure of the patient to the x-ray.

A CASE OF EXTENSIVE LEUCOPLAKIA BEGINNING IN CHILDHOOD, ACCOMPANIED IN THE EARLY STAGES BY FOLLICULAR KERATOSIS, AND FOLLOWED BY CARCINOMA OF THE TONGUE.

DR. M. B. HARTZELL read this paper, reporting an extensive leucoplakia, involving the entire buccal mucous membrane, occurring in a girl of eleven years, associated with keratosis of the follicles of the skin. After a duration of fifteen years, cancer of the tongue developed, necessitating excision of half this organ. The association of keratosis of the skin and mucous membranes was said to indicate, in exceptional cases, that the disease may be due to some constitutional fault, rather than to local cause.

Weak ointments of salicylic acid and the x-ray have been found by the author curative in some cases of leucoplakia.

Book Reviews.

Operative Gynecology. By HOWARD A. KELLY, A.B., M.D., LL.D., F.R.C.S. (Hon. Edinb.), Professor of Gynecological Surgery in the Johns Hopkins University, and Gynecologist to the Johns Hopkins Hospital, Baltimore; Fellow of the American Gynecological Society, etc., etc. With eleven plates and 703 original illustrations, for the most part by MAX BRODEL, Associate Professor of Art Applied to Medicine in the Johns Hopkins University. Second edition, revised and enlarged. Two volumes. New York and London: D. Appleton & Co. 1906.

The medical profession welcomes with joy this new edition of Dr. Kelly's book embodying the results of his unique experience in operative gynecology.

A careful comparison of the new edition with the old, published nine years ago, shows that the revision has been painstaking and thorough. Although something over two hundred and fifty pages have been added to the two volumes together, they are a trifle smaller than the volumes of the first edition, due to the use of slightly thinner paper, to a narrower margin about the printed pages and to the omission of thirteen of the twenty-four plates. Many of the old plates appear as inserts in the text of the new book; the obsolete plates and figures are left out.

Max Brödel has quite outdone himself in the new drawings. As a whole the illustrations are more effectively placed and show better printing.

There are forty-three chapters in the new as against thirty-eight in the old. The sequence of the chapters has been changed in places and some have been consolidated and rewritten.

Of the new chapters on local and palliative treatments, on displacements and pessaries, and on menstruation and its anomalies added, as the preface says, for the benefit of the general practitioner, the observation is forced from us that they are not particularly well done and, moreover, do not properly belong in a book with the title "Operative Gynecology." In view of the fact that this is not a complete treatise on gynecology these chapters were better omitted.

Not so with the new chapters on bacteriology, anesthesia, and the use of the x-ray in diagnosis. Here there is much new matter quite in accordance with the most modern ideas. The recent work of T. S. Cullen is followed closely in the rewritten sections on vaginal cysts and Bartholin's glands.

Other new features of this edition are: a recast chapter on diseases of the hymen, the technique of digital exploration of the uterine cavity, the removal of a uterine polypus through a cystoscopic speculum without injury to the hymen, a chapter on gynecological affections in children, Killian's operation for shortening the round ligaments, Mayo's operation for umbilical hernia, a short section on chorio-epithelioma, and a chapter from the work of John A. Sampson on abdominal extirpation of the cancerous uterus with fifty-six new and beautifully executed illustrations.

Altogether old text and old pictures have been omitted freely and their places taken by new, improving materially an already noteworthy book.

Surgical Suggestions. Practical Brevities in Diagnosis and Treatment. By WALTER M. BRICKNER, M.D., Chief of Surgical Department, Mount Sinai Hospital Dispensary; Editor-in-Chief, *American Journal of Surgery*, New York, and ELI MOSCHCOWITZ, M.D., Assistant Physician, Mount Sinai Hospital Dispensary; Editorial Associate, *American Journal of Surgery*, New York. New York: Surgery Publishing Company, 92 William Street. 1906.

This little book is a compilation of surgical suggestions that have been published in the *American Journal of Surgery* during the past year. They are arranged in a convenient form and serve to give the reader some practical points in surgery. The suggestions regarding instruments are really very clever; for example, "A spoon-shaped potato cutter may be used, in an emergency, as a wound curette." We do not doubt that the two hundred and fifty suggestions, which are grouped under appropriate headings and carefully indexed, will be of much interest to the general practitioner. Therapeutic hints and diagnostic points are of value if one recognizes that they are simply hints and points, and that is all that this book pretends to be.

Recent Advances in the Physiology of Digestion. By ERNEST H. STARLING, M.D., F.R.S. 156 pages. Chicago: W. T. Keener & Co. 1906.

Like Pawlow's volume on the "Work of the Digestive Glands," Professor Starling's book is a summary, to a large extent, of his own work and work done in his laboratory. He considers in a very interesting and stimulating manner the mode of action of ferments, the secretion of saliva, gastric digestion, the fundamental discovery of "secretin" as a stimulus of pancreatic secretion, the properties of pancreatic juice, bile, and the succus entericus. He also has a chapter on the movements of the alimentary tract. To one who knows only the conventional descriptions of

these functions as found in general physiological treatises, Professor Starling's exposition of his results will prove illuminating and suggestive.

Minor Maladies and Their Treatment. By LEONARD WILLIAMS, M.D., M.R.C.P., Physician to the French Hospital, etc. Pp. 383. New York: William Wood & Co. 1906.

In writing of "Minor Maladies and Their Treatment" the author of this book takes up matters which, as he rightly suggests, finds small place in our ordinary textbooks. From a practical standpoint minor maladies demand intelligent treatment to the same degree as more important ones, and the difficulty of intelligent treatment is often very much greater. In this small book the writer brings home to his readers such commonplace affections as coughs, colds, digestive disturbances, headache, rheumatism, neuralgia and similar conditions of disorder. He gives prescriptions and advice which are certainly suggestive, even though we may not always agree with them. A chapter is given on change of air, another on some common drugs and their uses, and finally the practical care of insanity is discussed. Naturally, the book is cursory, but it thereby gains in force, at least for the purpose for which it was written. It is altogether desirable that we should have wider discussion of the commonplace ailments.

American Practice of Surgery: A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: JOSEPH D. BRYANT, M.D., and ALBERT H. BUCK, M.D. Vol. I, pp. 818. New York: William Wood & Co. 1906.

The first volume of this extensive work is before us, and seven more volumes are promised. The appearance of Bryant and Buck's System of Surgery has been anticipated with interest by surgeons; but even surgeons, we believe, will be impressed and surprised by the unusual extent of the publication. Systems of surgery have appeared frequently in recent years, and doubtless this multiplicity of works is necessitated by the importance of the theme, and is essential to its proper exposition, but one wonders often where this making of many books is to have an end. We are informed by the editors that a careful study of the problem led them to the conclusion that a composite work, such as they contemplated, would present a picture more true to life and one more perfect in detail, if the different writers were not confined within boundary lines too strictly drawn. This proposition may be true. We have never edited an eight-volume System of Surgery, and doubtless are unfamiliar with the difficulties of the undertaking; but we cannot fail to be impressed, at the outset, with the great bulk of this first volume and its multiplication of topics. A composite literary production, to which numerous writers, without co-ordination, contribute, must contain a deal of repetition and necessitate able editing. We have read through, with interest, the volume before us, and have been impressed with the ambition and magnitude of the task and the labor of the contributors. The fifteen writers have done their work exhaustively; they have searched the literature; they have presented us with a great fund of information; they have told us the latest facts; they have supplied us with fifteen elaborate essays which deal completely and finally, so far as present finality is possible, with the topics in hand. It is a question whether a book thus written can be edited so successfully as to present to the reader a properly co-ordinated and consecutive treatise. In spite of the apology of the editors we cannot but feel that Volume I is too large. It is a heavy book to handle and the writings frequently overlap and duplicate each other in a fashion which might have been avoided to the greater comfort and edification of the reader. There is too much in the book; and though we feel, on finishing it, that we have acquired a great deal, we feel at the same time that our information is incommensurate with our labor.

In his capacity as a reviewer of scientific literature, the writer is impelled to iterate and re-iterate his observation on certain common and serious technical faults which appear constantly in this book, as they do in so many other scientific writings of the day, a lack of lucidity, an incompleteness in style, an irritating redundancy, a mixing of metaphors, an indifference to plain, straightforward, forceful English. Three years ago, T. Clifford Allbutt, the distinguished Regius professor of physic at Cambridge, told us of these faults, and published a valuable little book, "Notes on the Composition of Scientific Papers." We commend Allbutt's book to the contributors to "American Practice of Surgery." It is not that the essays under discussion fail to present facts in abundance, but the facts are so presented often that the machinery beclouds the action of the narrative. One puzzles over the construction of phrases, while their significance passes him by. This fault is lamentable, especially in the writing of elaborate and complete monographs, the perusal of which entails continuous and concentrated effort on the part of the reader. The fault is less apparent or less grievous when committed by the writers of brief journal-papers which strike a note quickly and forcibly, leaving the reader time to dwell upon it. It would be invidious here, and hypercritical, doubtless, to cite numerous instances of the redundant and confused writing which appears in this volume, but as an example of the difficulty to which we refer we quote the following phrases, and challenge the reader to elucidate them; the writer is describing methods of physical examination: "In instances of special examinations of female patients of instrumental or of oral kind, the near-to-hand presence of a third person of responsible station should be had." A recent reviewer criticised the style of a book on surgery as "simple," because the style did not distract the reviewer's attention from the meaning of the writer. We approve of such simplicity. Volume I of "American Practice of Surgery" is abundantly and admira-

bly illustrated, especially with microphotographs, which for their part tell their story lucidly; though the character of the illustrations does not always reach that high standard which we have come to look for among the rare best specimens of modern scientific book-making.

We have dealt thus extensively with the general aspects of the volume before us with no wish to detract from its incontestable value, but with a feeling of regret that the good should not have been the best. When we come to an inspection of the individual essays we find much that is admirable, and we feel that this work when completed will be a permanent and important addition to surgical literature.

Volume I opens with an essay on the "Evolution of American Surgery," by Dr. Stephen Smith, of New York, an essay of sixty-seven pages. Dr. Smith has collected from well-known sources, apparently relying largely on "A Century of American Medicine," published in 1876, by S. D. Gross and his associates, a considerable mass of information in regard to the achievements of American surgeons; and he gives us in concentrated form a series of brief statistical biographies, accentuating the fact that American surgery in the past has been clinical surgery, that the best American surgeons have been great clinicians, and that with the exception of the introduction of ether anesthesia, their accomplishments have been in the field of practice rather than in laboratory research, original investigation and novel exploitation.

The remaining fourteen articles deal with "Surgical Pathology" (344 pages); "Complications and Sequelæ" (86 pages); "General Surgical Diagnosis" (190 pages); "General Surgical Treatment" (80 pages); and "General Surgical Prognosis" (26 pages), and are divided into five parts, the most important of which contain the articles on pathology and diagnosis.

In Part I the article on "Inflammation" is written by Dr. Alfred S. Warthin, of Ann Arbor, who gives us an admirable and satisfactory summary of present knowledge. He has been allowed abundance of space for his theme, and we recommend this section to every student of surgery. Dr. Albert G. Nicholls, of Montreal, contributes an article on "Disturbances of Nutrition," and, later in the volume, a comprehensive and satisfactory discussion of "Tumors and Tumor Formation." The latter article is especially notable for its classification of tumors, and the succinct, convincing manner of the author's presentation. "Processes of Repair" is a brilliant essay by Dr. Edward H. Nichols, of Boston, and abundantly sustains the author's reputation for clear-sighted investigation and sound statement. Dr. Theodore A. McGraw contributes a chapter on "Theories of Tumor Formation." Few men are better qualified to discuss this fascinating theme. Dr. McGraw gives us an interesting, philosophical essay which one reads with delight. Note his final sentence: "The riddle is not solved by these statements, but is differently presented. We have still to learn the nature of that physiological bond which makes the existence of complex organisms possible, the bond which is broken whenever and wherever a tumor exists." Under the caption, "Parasitical Relations of Cancer," Dr. Harvey R. Gaylord, of Buffalo, advances in his felicitous fashion the various arguments in support of the parasitical nature of cancer. Unfortunately, considerable portions of his essay strike the reader as confused, and as hastily and obscurely written. "Infections which sometimes occur in Various Surgical Diseases and Conditions," by Dr. Paul M. Pilcher, of New York, should have been included under the chapter contributed by Dr. Warthin. Dr. Joseph C. Bloodgood, of Baltimore, writes entertainingly of "Surgical Shock," and incidentally pays his respects to Crile, of Cleveland, and Wainwright, of Scranton, Pa. Dr. Joseph D. Bryant, the veteran editor of the work, supplies a long, exhaustive and extremely valuable article on "General Surgical Diagnosis"; while Dr. Harlow Brooks, of New York, writes of the "Diagnostic Value of the Body Fluids," and Dr. Preston M. Hickey, of Detroit, supplies a suggestive article on the "Epiphyses and their Radiographic Interpretation." This contribution of Dr. Hickey seems somewhat superfluous, for it is followed by the elaborate and masterly article on "Radiographic Work" by Mr. Walter J. Dodd and Dr. Robert B. Osgood, of Boston. Then follow two excellent essays with which the volume closes: "General Surgical Treatment," by Dr. James E. Moore, of Minneapolis, and "General Surgical Prognosis," by Dr. Leonard W. Bacon, Jr., of New Haven, Conn.

From such a mass of interesting and important writing it is impossible to extract and present in the allotted space here more than this brief synopsis. The volume contains a great deal of information; the personalities of the writers appear constantly; there is a refreshing freedom from dry statistical comment, and one feels on finishing the book that he has been touching hands with men actively and enthusiastically concerned with the subjects of which they write.

Helouan: An Egyptian Health Resort and How to Reach it. By H. OVERTON HOBSON, M.D. (Edin.), Egyptian Government Medical Director of the Baths, Helouan, etc. London, New York and Bombay: Longmans, Green & Co. 1906.

Helouan, sixteen miles south of Cairo by rail, three miles from the Nile, at an elevation of 150 feet from the river level and entirely surrounded by desert is a now well-known health resort. It has a dry, fairly equable climate, a good system of baths, a golf links and races, thus offering inducements to individuals or to families of varying degrees of health. This little book of less than 100 pages with 35 illustrations and two maps gives all necessary information in detail. Its author, Dr. Hobson, is the official successor of Dr. W. Page May, who was well known to many Americans, and from his office and experience is well qualified to do justice to Helouan.

On Tabes Dorsalis. The Lumleian Lectures delivered before the Royal College of Physicians, London, March, 1906. By DAVID FERRIER, M.D., LL.D., F.R.S. 8vo. Pp. iv, 122. With 46 illustrations. New York: William Wood & Co. 1906.

In these lectures the author has preferred to deal somewhat exhaustively with a few matters pertaining to tabes, rather than to give a general but superficial survey of the whole subject. The first two lectures, therefore, are devoted solely to the pathology and pathogenesis of the disease. After a careful consideration of the subject, he rejects Marie's hypothesis that there is in tabes a posterior meningitis of a syphilitic character, although he admits that the posterior roots and columns are especially exposed to injury from noxious substances or toxins ascending in the cord, and he inclines to the belief that the "essential lesion of tabes is a dystrophy, similar to that induced by certain noxious agents, affecting the sensory protoneurone as a whole, and manifesting itself in degeneration of the peripheral and cerebral terminations, of which the intramedullary are the more vulnerable, and are usually the earliest to exhibit anatomical change." There is no hypothesis, however, "which is not open to several more or less serious objections." He believes, furthermore, that it would conduce to a truer conception of pathology to call both tabes and general paralysis by the one name of tabes, with the divisions of cerebral tabes (general paralysis), spinal tabes (locomotor ataxia), and cerebro-spinal tabes (tabo-paralysis). He rejects Ford Robinson's hypothesis of a *bacillus paralyticans* akin to the Klebs-Loeffler bacillus as the specific cause of these two affections, and thinks Strümpell's hypothesis more probable, "that the syphilitic virus under certain conditions so affects some viscus or gland that in time it develops and continues to elaborate some toxic internal secretion which exerts its noxious influence on the nervous system." The last lecture considers very fully the physiological pathology of tabes, especially with reference to ataxia, "which depends on impairment or loss of centripetal impressions of all kinds, conscious as well as unconscious, and, of these, those from the deeper structures (muscles, tendons, joints) are more important than the superficial." The other symptom considered is the tabetic pupil, which may be due to degenerative changes in the ciliary ganglion and ciliary nerves, which cannot transmit the reflex impulse of light, but can allow the more powerful stimulus from accommodation to pass through. The lectures are of decided interest and are more than a review of recent literature upon tabes, but are also the product of much original investigation. They cannot be neglected by any student of neurology.

Medical Guides and Monograph Series. Golden Rules of Pediatrics. Aphorisms, Observations and Precepts on the Science and Art of Pediatrics: Giving Practical Rules for Diagnosis and Prognosis, the Essentials of Infant Feeding and the Principles of Scientific Treatment. By JOHN ZAHORSKY, A.B., M.D., Clinical Professor of Pediatrics, Washington University Medical Department, St. Louis. Pp. 362. St. Louis: The C. V. Mosby Medical Book Company. 1906.

This work is a collection of disconnected paragraphs which are, as stated in the title, aphorisms, observations and precepts on the science and art of pediatrics. They amount merely to the propositions which, as the author states in his preface, appear to him to be the most valuable. No pretension is made to completeness, consequently no criticism as to omissions are allowable. Little exception can be taken to most of the author's statements. We cannot agree with him, however, in preferring the naked ear to the stethoscope, and feel that he is too much inclined to give opium to children and that he puts too much syrup in his mixtures.

The book is not as large as would appear from the number of pages, as the print is very large and the margins wide. It in no way takes the place of a text-book but may prove of some use in emphasizing some of the more important points in pediatrics.

Polypus of the Nose. By EUGENE S. YONGE, M.D. (Edin.), Honorary Assistant Physician, Manchester Hospital for Consumption and Diseases of the Throat. Manchester and London: Sherratt and Hughes. 1906.

This is a small book of one hundred and fifty pages, which deals with the whole subject of nasal polypus in a clear and instructive manner, but to the specialist is especially interesting from the author's studies of the etiology of the disease. After describing the ancient view of polypi, and discussing the theories of Woakes and of later authors, especially of Lack, in which disease of the underlying bone plays a prominent part, the author concludes from his own researches that polypi are edematous hypertrophies of the nasal mucous membrane, the indirect result of certain mechanical changes in the glands. These changes consist in partial closure of the excretory ducts accompanied by hypersecretion of the glands. By artificially producing these conditions in cats, he succeeded in causing the growth of polypi and polypoid degeneration in the cat's nose. The plausibility of the author's position calls attention to our ignorance of the nature of polypi and its associated conditions. The relation between polypoid degeneration and asthma and other vaso-motor disturbances has never been satisfactorily explained, but would seem to come in line with the author's theories of etiology as well as with previous ones. In addition to the excellent chapters on etiology, the book also contains chapters on pathology, diagnosis and treatment of polypi, so that it may be used as a student's manual of the disease. For cases in which more is required in the way of treatment than simple removal with a snare, the author advocates and describes the radical methods of Luc.

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OPERATIONS ON THE CENTRAL NERVOUS SYSTEM.

ONE of the most notable papers read at the recent meeting of the British Medical Association at Toronto was that of Sir Victor Horsley on "The Technique of Operations on the Central Nervous System."[1] Horsley unquestionably stands as the leading exponent of the surgery of the nervous system, and whatever he may say is as authoritative as is possible in a subject of this character. For many years Horsley has been operating with a considerable measure of success on the brain and spinal cord, and during that time has given out little of his experience and results for reasons best known to himself. It is, therefore, with particular satisfaction that we finally have from him a statement of his present position in matters of vital interest to surgeons and physicians alike. At the opening of his address he stated that exactly twenty years had elapsed since he had demonstrated before the association the first three patients upon whom he had operated for intracranial disease. The cases which he had observed during those years formed the basis of his communication.

We cannot in the space at our disposal do more than call attention to a few of the conclusions to which the study of these cases has led. It is insisted that the study of neurology should be advanced by every possible means to the end that tumors of the brain may be diagnosticated at the earliest possible moment. Much of the vital pathology and true anatomical nature of brain disease cannot be learned from post-mortem investigations, but must be studied in the living at every opportunity. The responsibility of the surgeon in the treatment of diseases of the central nervous system must be fully recognized. So long as our powers of diagnosis remain imperfect, the vulgar error of regarding operation as the last resort will continue to be committed. Correct diagnosis and rational operation should take the place of empirical medical treatment and delay. Operation when undertaken should be done for a definite purpose, either of palliation or cure.

Perhaps one of the most significant portions of the entire address is the insistence which Horsley lays upon operation for the relief of symptoms, notably optic neuritis. He maintains that it is now possible to be dogmatic on this question and that in no case of optic neuritis, due to intracranial disease, should the process be allowed to continue after it has once been diagnosticated, and that if operation is neglected, with blindness as a result, the responsibility lies heavy on the delinquent physician or surgeon. To accomplish the subsidence of an optic neuritis it is desirable to make a free opening in the dura mater rather than be satisfied with merely opening the skull. Horsley does not hesitate to say that blindness may with certainty be averted by opening the subdural space early in cases of intracranial disease. This statement, coming from such a source, should be most seriously pondered by those into whose hands cases of intracranial disease may fall. The so-called decompression operation, advocated by Cushing, Frazier and others in this country, is naturally designed to carry out this idea of reducing the optic neuritis as well as of relieving the other distressing symptoms of brain pressure.

In considering curative surgical procedures certain generalizations may also with justice be made. Special motor functions cannot be restored if the whole of their cortical representation is removed. This is also true, presumably, of the special senses. Compensation can, therefore, not be regarded as possible after the destruction of so-called middle level centers, whereas the higher sensory representations and the intellectual functions are not permanently abrogated by the destruction of any one part of the hemisphere. A warning is nevertheless given that as little injury be done the brain as possible and no more than is absolutely necessary removed. In regard to the cerebellum it appears that it may be bruised and injured to a considerable degree without per-

[1] Brit. Med. Jour., Aug. 25, 1906.

manent disturbance of function. In spite of this fact, Horsley is not inclined to go so far as Frazier in advocating the possible extirpation of a lateral cerebellar lobe in the removal of deep-seated tumors. Here, again, his experience has shown that it is desirable to preserve as much as possible of every portion of the encephalon.

It will be of interest to American readers, and yet not altogether surprising, that ether is regarded as an inadmissible anesthetic in operations on the central nervous system. The danger of ether lies in the facts that it causes a rise of blood pressure, an increase of the blood venosity, and hence additional and troublesome hemorrhage. Chloroform, on the other hand, leads to a fall of blood pressure with less blood venosity, and consequently does not aggravate the bleeding. Chloroform, however, it is admitted, remains the more dangerous anesthetic.

The details of surgical technique, the reports of cases illustrative of various points in the discussion, the treatment of shock, consideration of sepsis, and many other matters should be read in detail by those interested. A careful reading of the paper leaves one with a feeling of great hopefulness regarding the future of this difficult branch of surgery. It also serves to impress the fact that what success is attained can only be after much experience and painstaking study both of neurological diagnosis and of surgical technique. It serves finally to impress the conviction that progress must be attained through specialism and that many cases must fall into the hands of one man if the requisite skill in operative procedure is to be attained. Horsley's accomplishments should certainly serve as a stimulus to neurologists and surgeons the world over.

EXPERIMENTAL ANEMIAS.

The development of methods for counting and staining blood cells and estimating hemoglobin, especially the simplification of these methods so as to render them easily applicable to clinical work, has resulted, first, in the diagnosis of very many cases hitherto overlooked, and secondly, in a vast increase in our knowledge of the earlier stages of the anemias and of the pathology of the circulating blood in these and other conditions. Already the blood picture of pernicious anemia in its varying modifications is quite well understood. Post-mortem studies of the body tissues have taught us many facts with regard to the end stages of the disease, but much remains unknown as to the earlier stages, and as yet the important question of etiology is unanswered.

In the study of most diseases the clinical method and post-mortem study must eventually reach their end in results. New methods may, from time to time, extend the limits of possible discovery, but without the experimental method a complete understanding of the disease is probably unattainable. A great contribution of recent years to medical science has been the extension of the experimental method into the study of many diseases. While it must be remembered that there are many limitations in the application of results obtained in animal experiments to the explanation of human disease, yet it cannot be denied that many facts learned from animals do throw great light on the genesis and course of disease in man.

In pernicious anemia at first it was a question as to whether the condition was essentially different from that seen in a very severe secondary anemia. A study of the blood shows in most cases a picture different from that of cases known to result from severe or long continued slighter hemorrhages, and in animals bleeding never produces a condition very analogous to that seen in pernicious anemia. Recently Bunting [1] has succeeded in producing in rabbits a condition in which the circulating blood and the bone marrow showed conditions almost identical with those found in pernicious anemia in man. These were produced by injections of ricin or saponin, both vegetable poisons. Study of these animals at various stages of the disease compared with the study of animals in which an anemia was produced by repeated bleeding convinced Bunting that there is an essential difference between a primary and a secondary anemia. In the primary anemia there is a lesion, destructive in nature, of the hematopoietic tissues, not merely a continued destruction of blood cells. If we can reason by analogy to man, the future study of cases of pernicious anemia should reveal some toxin as yet undiscovered, the action of which is mainly on the bone marrow, producing injury of its tissues and perversion of its function. Some such toxic action had already been inferred from the results of clinical and post-mortem studies, and its formation associated with intestinal disturbances. Herter [2] concludes from his studies of the subject that the anemias are often closely connected with a toxic putrefactive process in the intestine initiated by a gas-forming organism of wide distribution,—the B. aërogenes

[1] Jour. of Exp. Med., 1906, viii, 625.
[2] Trans. of Assoc. of Am. Phys., 1906, xxi, 725.

capsulatus, — an hypothesis which at present does not seem sufficiently established to justify unreserved acceptance. If future work shows that a toxic substance is so formed, especially one whose action harmonizes with the results of Bunting's experimental work then a stronger claim may be made for this as the cause of pernicious anemia.

APPOINTMENT OF DR. GEORGE B. MAGRATH AS MEDICAL EXAMINER.

ANNOUNCEMENT is made of the appointment of Dr. George B. Magrath as medical examiner for Suffolk County to succeed Dr. Francis H. Harris. This appointment will meet with universal commendation. Dr. Magrath, both by training and temperament, is peculiarly fitted for the arduous and at times difficult duties which this office entails. He was born in 1870 and for the greater part of his life has been a resident of Massachusetts. After graduating from the Roxbury Latin School, he entered Harvard College, and was graduated with distinction in 1894. His course at the Harvard Medical School, where he received his degree in 1898, was equally creditable. He was given the degree of Master of Arts by the university the subsequent year. Up to within something over a year he has been identified with pathological anatomy at the Harvard Medical School and at various hospitals in Boston and vicinity. He was for many years pathologist to Long Island Hospital in Boston Harbor, and did much toward establishing the department of pathology in that institution on a stable basis and thereby toward advancing the thoroughness of the hospital work and its wider usefulness. Since September, 1905, he has been identified with the work of the State Board of Health as assistant to its secretary, Dr. Charles Harrington.

On the purely technical side of his work Dr. Magrath comes well prepared, since he has personally performed between nine hundred and one thousand autopsies. This has made him one of the best gross pathological anatomists in the city. Such knowledge, combined with great capacity for work and a judicial attitude of mind, should peculiarly fit him for the responsible position which he is about to assume. The city we believe is to be congratulated upon his selection for this important post.

MEDICAL NOTES.

THE BENDER HYGIENIC LABORATORY. — The third volume of studies from the Bender Hygienic Laboratory of Albany, N. Y., has recently appeared. The papers on various subjects connected especially with recent problems of pathology show a commendable activity in research under the general supervision of the director, Dr. Richard M. Pearce.

RESIGNATION OF DR. WILLIAM W. KEEN. — Dr. William W. Keen has resigned the professorship of surgery in the Jefferson Medical College of Philadelphia and has been elected professor emeritus of surgery. Dr. Keen has been connected with the Jefferson Medical College for twenty-seven years.

A SMALLPOX EPIDEMIC. — A smallpox epidemic of somewhat wide extent, which has recently visited Springhill, N. S., and adjoining parts of the country, has been traced to certain bedding and furniture stolen from a hospital occupied a year before by smallpox patients. The persons suspected of having stolen the bedding are said to have moved to Springhill previous to the outbreak.

THE FUTURE OF COLLEGE ATHLETES. — According to the conclusions of Dr. W. G. Anderson, director of the gymnasium of Yale University, college athletics tend to prolong life and to insure health. This conclusion is based on a statistical study of the mortality among members of Yale teams as compared with others who did not take part in athletics during their college course. The investigation extended over a period of fifty years. The conclusion is reached that athletes have a somewhat better chance for life than others. It is, however, evident that a very much larger statistical inquiry should be undertaken before any dogmatic assertion can be made in the matter.

SNOW IN PARIS STREETS. — The unusual occurrence of four inches of snow in Paris, which fell the day after Christmas, seems to have almost paralyzed the street cleaning department. The free use of salt is the usual adjuvant for dealing with the customary light falls of snow. It is reported that 37,000 francs' worth of coarse salt was used on this last occasion. The health authorities are now beginning to protest against this practice as dangerous to men and horses.

SIXTH INTERNATIONAL DERMATOLOGICAL CONGRESS. — The sixth International Dermatological Congress will be held in New York beginning the 9th of September, and continuing for one week. The first congress met in Paris in 1889, and since then at intervals of about three years there have been meetings in Vienna, London,

Paris and Berlin. At the last meeting, held in 1904 in Berlin, Dr. James C. White, of Boston, was elected to preside over the forthcoming congress. The meetings will be open to the public. Physicians may become members of the congress by registering with the secretary-general, Dr. John A. Fordyce, of New York. Papers may be read in English, French, German, Spanish and Italian. Among the subjects selected for formal consideration are: The etiological relationship of organisms found in the skin in exanthemata; tropical diseases of the skin; immunization against syphilis, and the parasitology of syphilis.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Jan. 16, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 57, scarlatina 288, typhoid fever 7, measles 20, tuberculosis 62, smallpox 0.

The death-rate of the reported deaths for the week ending Jan. 16, 1907, was 21.30.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Jan. 12, 1907, was 266, against 198 the corresponding week of last year, showing an increase of 68 deaths and making the death-rate for the week 23.03. Of this number 144 were males and 122 were females; 262 were white and 4 colored; 162 were born in the United States, 98 in foreign countries and 6 unknown; 59 were of American parentage, 176 of foreign parentage and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 52 cases and 4 deaths; scarlatina, 203 cases and 0 deaths; typhoid fever, 2 cases and 3 deaths; measles, 18 cases and 1 death; tuberculosis, 42 cases and 22 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 46, whooping cough 0, heart disease 29, bronchitis 10 and marasmus 2. There were 9 deaths from violent causes. The number of children who died under one year was 42; the number under five years 55. The number of persons who died over sixty years of age was 72. The deaths in public institutions were 98.

There were 5 cases and 5 deaths reported from cerebrospinal meningitis during the week.

The Free Public Lectures at the Harvard Medical School. — The attendance at the first two lectures of the new public course at the Harvard Medical School was very satisfactory and gratifying, and much interest was manifested. On Saturday night, a stormy night, Dr. R. W. Lovett lectured to an audience of eighty people, and on Sunday afternoon Dr. E. H. Bradford lectured to one hundred and eighty. The attendance was about of the same character as that seen at a Lowell lecture.

Harvard Dental School. — Plans are perfected for the new building of the Harvard Dental School to be built on land immediately adjoining that on which the new medical buildings stand. Two hundred and fifty thousand dollars are required for purposes of construction and it is also desirable that an equal amount should be provided as an endowment fund. Only a small part of this money is now in hand, but it is hoped and expected that the friends and graduates of the school will combine to make it feasible to carry out the project which is necessary if the school is to continue its useful work in the community.

Bequest to Aid Medical Research. — By the will of the late Charles F. Harrington, a Boston merchant, Harvard College receives $50,000 under the provision that the income of this amount be employed to further investigations relating to the knowledge of infectious, communicable or kindred diseases. The fund may be invested separately or otherwise as the President and fellows may deem fit.

Two hundred thousand dollars is also left as a perpetual memorial to his father and mother, the income of which is to be particularly directed toward the health and happiness of children.

Mayor Fitzgerald's Attitude toward Tuberculosis. — At the recently held inauguration of the Boston city government for 1907, Mayor Fitzgerald spoke at considerable length on the question of tuberculosis in the city. Since assuming office, one year ago, the mayor has been urgent in the establishment of a hospital with the fund provided under a previous administration. This has now been done under the immediate supervision of a board of seven unpaid trustees. In this address he urges further provision for this class of patients and calls attention to the crowded condition of the hospitals where they are now received. He urges the immediate need of a special clinic for consumptives and for a wider dissemination of knowledge relating to the prevention of the disease. To this latter end he has had distributed, under the supervision of the trustees, a pamphlet on the nature of tuberculosis its means of prevention and advice both to the well and sick. The mayor's order is printed in

this pamphlet together with a list of regulations to prevent the spread of the disease in municipal buildings, offices and work shops.

NEW YORK.

A CENTENARIAN. — Mrs. Mary Richardson died at Stapleton, Borough of Richmond, New York City, on Jan. 9, at the apparently well authenticated age of one hundred and ten years. She is stated to have been born in Donegal, Ireland, in January, 1797, and she had resided on Staten Island for the past seventy years.

ASSOCIATION FOR IMPROVING CONDITION OF THE POOR. — In the sixty-third annual report of the New York Association for Improving the Condition of the Poor it is stated that among the expenditures of the year was $965 which was devoted to obtaining the data necessary to convince the Board of Estimate and Apportionment that an extra appropriation should be made to the Health Department for the examination of school children for the removal of physical defects, and that the sum of $123, used with discrimination, resulted in the passage of the Sea Beach Park bill, through which the city is enabled to expend $2,500,000 for a great ocean park for the poor "To have spent money in homes of cripples," the report says, "would never have taught millions of parents that crippled children were unnecessary, that their condition is caused by neglect and can often be cured at the seashore. Nor would it have raised $250,000 for a new hospital for crippled children suffering from bone tuberculosis, and interested a score of communities in giving their cripples a chance of life and cure by out-of-door treatment. The association's contributors are told over and over again, in letters and by reports, that it is doing its utmost to exterminate itself, to make itself unnecessary, by removing conditions which breed dependence. It emphasizes the educational use of its experience in relief work to secure pure milk, enforce school laws and the proper use of school children's time, and to wipe out consumption. We started sixty years ago to do educational work, and will not admit that the educational work done by this association last year was not as important as that done by Columbia University."

AMERICAN CHEMICAL SOCIETY. — At a meeting of the New York Section of the American Chemical Society held Jan. 11, the new Pure Food and Drug Act formed the topic of discussion, and the general opinion was expressed that although the law went into effect only on Jan. 1, its moral effect was already widespread. Among those who spoke were Dr. Nellis B. Foster, of the medical department of Columbia University; R. Z. Doolittle, of the United States Food Laboratory in New York, and Dr. Virgil Coblentz, of the New York College of Pharmacy. In the course of his remarks, the last-named said that one of the benefits of the act which would be felt earliest was its operation against the sale of cocaine, the use of which had become alarmingly prevalent. It was being largely employed in the manufacture of catarrhal snuffs, and was more dangerous and injurious than morphine, because of its more extensive use. The chief address of the evening was to have been made by Dr. H. W. Wiley, of Washington, but, as he was prevented from attending, he sent a paper which was read by the chairman of the meeting. In it Dr. Wiley stated that new laboratories were to be established in Buffalo, Charleston, Jacksonville, Galveston, St. Paul, St. Louis, Detroit, Denver, and Seattle or Portland, Ore. He expressed the opinion that the law would be enforced in a spirit of fairness towards business interests, and said that an important part of the work of the government would be the regulation of added substances, used to preserve and to color foods. As regards meats, the added substances would be limited to salt and other harmless condiments, sugar, vinegar, wood smoke, and, pending investigation, saltpetre. The researches carried on in the Bureau of Chemistry had shown the injuriousness of sulphites, and these would be placed on the forbidden list.

Obituary.

WALTER A. LECOMPTE, M.D.

DR. WALTER A. LECOMPTE died at a private hospital in Boston, Jan. 13, at the age of thirty-six. The immediate cause of death was peritonitis, following an operation for appendicitis, which, although undertaken shortly after the onset of the attack, proved unsuccessful because of an antecedent perforation of the appendix. For several days preceding his death little hope was entertained of his recovery.

Dr. Lecompte was born in 1870 in Syracuse, N. Y., was graduated from Harvard University in 1893 and from the Harvard Medical School in 1897. He served thereafter as surgical house officer at the Massachusetts General Hospital, and after a year's study abroad returned to Boston and established himself in practice as an aurist. He was soon appointed on the staff of the Eye and Ear Infirmary and for several years had been

visiting aurist to the Long Island Hospital. He was also an assistant in otology, at the time of his death, in the Harvard Medical School, and was a popular and enthusiastic teacher.

During the comparatively few years of his active medical practice he had shown himself a man of great industry and capacity. His interests extended beyond the actual practice of his profession, and at the time he was taken ill he was engaged in original work of importance. He was regarded with much affection by a wide circle of friends and his loss will be felt not only by those with whom he came into intimate professional contact, but by many others who knew him as a man of sterling character and unusual accomplishments. Dr. Lecompte was not married.

Current Literature.

The Journal of the American Medical Association. Dec. 29, 1906.

1. *Musser, J. H. *The Management of Tuberculosis.*
2. *Carstens, J. H. *The Stem Pessary for Amenorrhea and Dysmenorrhea.*
3. Marcy, H. O. *The Best Method of Closing Aseptic Wounds.*
4. *Morrell, J. *Cases of Meningitis with Isolation of the Diphtheria Bacillus.*
5. *Butler, W. J. *Etiology of Cerebral Palsies in Children.*
6. *Cook, J. C. *Bacteriologic and Blood Findings in Bowel Infection of Infants.*
7. *Einhorn, M. *The Dietetic Treatment of Diabetes Mellitus.*
8. Robinson, W. J. *Strychnin and Hydrastin in Sexual and Vesical Weakness.*
9. *Halsted, W. S. *Results of Occlusion of the Abdominal and Thoracic Aorta by Metal Bands.*
10. *Pillsbury, H. C. *Reduplication of Heart Sounds.*
11. Novy, F. G.; Knapp, R. E. *Cultivation of Spirillum Obermeieri.*
12. *Otis, E. O. *The Tuberculosis Dispensary.*

1. Musser calls attention to the number of forms of treatment of tuberculosis which have held a fleeting popularity, only to be discarded. Perhaps some have been of value, but the moral which history points out is that we should be conservative in accepting new methods. Certain tendencies to-day need correction. The public are dangerously educated as to the curability of tuberculosis; all that we can say is that tuberculosis is *sometimes* curable. The sanatorium treatment is placed on too high a pedestal. Sanatorium treatment and methods are only a fraction in the great struggle. The premature statements of Koch, Behring and others should warn scientific workers against hasty conclusions. The danger of political control of institutions is to be guarded against, so that sanatoria may be conducted by competent physicians, and with definite principles of administration. In the management of cases, no patient should be cleared of suspicion or condemned on one examination, if there is the slightest doubt; but once the diagnosis is made, with certain exceptions, the patient should be told at once the nature of his illness. Notification of the public authorities should be universal. In treatment rely upon rest, fresh air and food. Drugs are of service only to influence digestion, circulation or the blood. Climate is of positive value, but only if obtainable without too great sacrifice.

2. Carstens advocates the use of the stem pessary in cases of amenorrhea with infantile or atrophied uterus, believing that while the pessary is worn the irritation causes muscular contraction from which muscular development results. He prefers the stem pessary to dilatation in cases of dysmenorrhea due to stenosis, or to the fibrous atrophy of the cervix which is met with in unmarried women. The uterus is dilated and curetted under an anesthetic, and the Hodge-Thomas pessary inserted, to be worn from three months to a year. One absolute contra-indication to this procedure is the existence of active or latent pelvic inflammations.

4. Morrell reports a case of general tuberculosis in which the bacillus or diphtheria was isolated from the cerebrospinal fluid.

5. Butler classifies the cerebral palsies of children, according to the period of the appearance of lesions, as antenatal, natal and postnatal. Those of the first class are most commonly due to embolism or thrombosis of vessels, resulting from infections of the mother or the fetus. Birth palsies are due to meningeal hemorrhage from trauma or prolonged labor or prolonged asphyxia. Postnatal hemiplegias may occur from hemorrhages induced by the intense congestion in convulsions or other conditions; they occur also from thrombosis or embolism or rarely from brain tumor, as in adult life. A cause of disputed but probably great importance is acute encephalitis.

6. Cook publishes a table of blood examinations in thirty-six cases of bowel infection in infants. No bacteriological examinations appear.

7. Einhorn summarizes the dietetic treatment of diabetes, giving the diet list which he habitually prescribes. He mentions the oatmeal cure of von Noorden, recommended especially in grave cases, in which 250 gm. of oatmeal, 100 of vegetable albumin and 300 of butter, combined in a soup are given as a daily ration. He considers the treatment of cases complicated by stomach disorders. For hyperacidity, the diabetic diet is not changed. For achylia gastrica, a modified diet is described in full. In acute digestive disturbances the diet must be planned without considering diabetic restrictions until improvement occurs.

9. Halsted has occluded the aorta, partially or completely, in a large number of dogs. The blood pressure in the distal portion was at first lowered in proportion to the degree of occlusion, but rapidly returned to approximately normal. Some partial occlusions later spontaneously became complete. A remarkable result noted about three months later, in a number of cases, was a deposit of extradural fat about the spinal cord below the site of the aortic band, seemingly under considerable tension. In the human subject Halsted has partially occluded the innominate artery once, and the common carotid four times.

10. Pillsbury concludes that persons with thin chest walls normally show reduplication of heart sounds, whereas those with thick chest walls do not. In these latter, the occurrence of reduplications is significant. Reduplication of the first sound means that the heart is not working properly, whether from nervous interference, the disturbing influence of abnormalities of neighboring organs, or inefficiency of the heart muscle itself. Reduplication of the second sound as well means only a more advanced degree of the same conditions. Reduplication of the second sound alone means an alteration in the relative blood pressures of the systemic and the pulmonary circulations.

12. Otis describes the methods and experience of the Boston Tuberculosis. Dispensary The patient is studied both socially and medically, every fact of his history and environment that can bear on this disease is looked up at the clinic or by the visitor or nurse at the home, and he is thoroughly educated in the hygiene of tuberculosis so that others may not suffer from his ignorance. Of course, this requires the co-operation of the patient, which is not always thoroughly given, and in crowded tenement districts a suitable environment is not always possible. A fairly full history is taken and an examination is made at the dispensary, the patient is weighed, pulse and respiration are taken, graphic diagrams are given as to the lung conditions, and the sputum is examined if obtainable; if not, the patient is requested to bring a sample at the next visit. In case of doubt, recourse is had to the tuberculin test or the x-ray, though the latter is only of limited value. If the diagnosis is positive the case is reported to the board of health and the name and address put on the visiting nurse's card, on which are questions relating to domiciliary hygiene, etc. When filled, this card is filed with the history and examination papers, and the data from subse-

quent visits are likewise kept on file. The patient is instructed as to his condition and what he is to do, and in most cases some medical treatment, as indicated, is given. A tuberculosis dispensary is extremely valuable, Otis states, for teaching purposes, and offers a favorable field for research work and the study of all questions relating to the disease. It requires but little and simple equipment; a microscope, two rooms if more are not available, staining reagents, a stethoscope and an enthusiastic physician to use them, and a visitor, who may be a volunteer layman, with an altruistic spirit, tact and common sense are the essentials.

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.
JANUARY, 1907.

1. MEYER, A. W. *Some Characteristics of the Medicine in Shakespeare.*
2. *SAMPSON, J. A. *The Various Types of Carcinoma Cervicis Uteri.*
3. *CARREL, A. *The Surgery of Blood Vessels.*
4. EMERSON, C. P. *The Blood of Normal Young Adults.*

2. Sampson describes the various forms of cancer of the cervix uteri, with many excellent illustrations. Cases of cancer of the uterus give a history of a bloody discharge in 93%. Women should be educated as to the importance of heeding this warning. Following the types of epithelium of the cervix, the carcinoma may be of squamous cell or of cylindrical cell type (adenocarcinoma). These growths may occur either upon the vaginal portion of the cervix or within the cervical canal. Both may be vegetative (cauliflower) or infiltrative (ulcerative) in form. The squamous cell vegetative growth arising from the vaginal surface of the cervix is the most easily diagnosed and the least malignant. The difficulty of diagnosis and the malignancy is greater in the infiltrative forms. Most malignant of all is the adeno-, or cylindrical cell, carcinoma of the cervical canal.

3. Carrel describes the technic of operations upon blood vessels, such as diminishing the size of the lumen, anastomoses and transplantations. He has performed many such operations upon animals for various purposes, such as the modification of circulation of a limb by reversing the blood current, through implantation of artery upon vein and vein upon artery. By similar methods he has attempted to increase the circulation of the brain. Replantations and transplantations of limbs and of organs have been performed with considerable success. Hope is expressed that in the future these methods may find clinical application.

THE LANCET.
DEC. 22, 1906.

1. MARK, L. *Art and Medicine.*
2. *GREEN, T. A. *Heart Massage as a Means of Restoration in Cases of Apparent Sudden Death with a Synopsis of Forty Cases.*
3. BERRY, J. *Large Arterio-venous Aneurysm of the Neck Treated by Excision.*
4. WHITE, R. G. *Note on Three Interesting Heart Cases.*
5. *BONNEY, V. *The Treatment of Ovarian Prolapse by Shortening the Ovarian Ligament.*
6. *NEWMAN, D. *An Operation for the Cure of Prolapsus Ani and Internal Hemorrhoids.*
7. WARE, E. E., and GLOVER, L. G. *A Case of Intussusception and Volvulus Occurring at Intervals in the same Patient; with Operation and Recovery.*
8. CRENDIROPOULO, M., and AMOS, C. B. S. *Further Observations on the Influence of Calcium Chloride on the Agglutination of Vibrios.*

2. Green gives an interesting and clear discussion of the subject of heart massage, presenting two cases of his own in detail and a brief synopsis of forty other cases collected from the literature. Heart massage is based on animal experiments commenced by Schiff in 1874. Green's first case was a boy of nine who after a few whiffs of chloroform for a small operation, stopped breathing and soon became pulseless and apparently dead. Ordinary measures proving of no avail, the abdomen was opened and direct massage on the heart commenced. In about three minutes the heart began to beat again, and, although the boy did not regain consciousness, continued to beat for twenty hours till death took place. The second case was one of diphtheria in a child of three years, who suddenly had an attack of syncope and stopped breathing. As in the first case, the abdomen was opened and the heart massaged. In five minutes it resumed beating and kept it up for one and one-half hours longer, when it finally stopped. The great majority of cases in which this has been tried is in syncope following chloroform anesthesia. There are four methods which the writer describes to gain access to the heart: (1) The thoracic method; (2) the transdiaphragmatic method; (3) the subdiaphragmatic route and (4) Crile's method by indirect massage through the chest wall, a rubber suit compressing abdomen and extremities. A table giving the particulars of nine successful cases is presented. The writer believes that to be successful, heart massage must be accompanied by artificial respiration and its adjuncts. He believes that in suitable cases this method of resuscitation is of distinct value. His method of procedure in a given case would be: (1) Immediate lowering of the head and artificial respiration; (2) if the abdomen is open, pressure on the abdominal aorta to confine circulation to the upper part of the body, and if it is not open, intravenous injection of adrenalin solution and a Crile rubber suit; (3) normal saline injections; (4) if the above methods have not been successful, direct massage on the heart by the subdiaphragmatic route.

5. Bonney describes a simple operation by which he shortens the ovarian ligament in cases of ovarian prolapse. When symptoms are due to displacement of the ovary alone he does nothing else; where the uterus is also out of its normal position both ovary and uterus must be put back into position. In chronic disease of the tube and ovary he first frees the ovary from the tube and then shortens the ovarian ligament.

6. Newman records very satisfactory results in prolapsus ani and internal hemorrhoids from cauterizing, by means of a fenestrated speculum, six narrow strips of rectal mucous membrane, 4 in. long and ¼ in. wide. The sensitive area of the anus is not touched so the patient suffers no shock and little pain afterwards. The adhesions formed being in longitudinal bands and not transverse rings, never tend to form strictures. The sphincter is uninjured and acts normally after operation.

BRITISH MEDICAL JOURNAL.
DEC. 22, 1906.

1. *MACCOMBIE, J. *An Address on the Exanthem of Scarlet Fever and Some of Its Counterfeits, and the Clinical Significance of Skin Hemorrhages in Diphtheria.*
2. ADAMI, J. G. *A Discussion on the Physiology and Pathology of the Nucleus.*
3. *KLOTZ, OSKAR. *A Discussion on the Classification and Experimental Classification of Arteriosclerosis.*
4. MOTT, F. W. *Changes in the Nervous System Produced in Chronic Trypanosome Infections.*
5. NICOLLE, M., and MESNIL, F. *Treatment of Trypanosomiasis by the "Colours of Benzidine."*
6. BALLAH, J. R. *Notes upon Experiments with Vaccine Lymph.*
7. *BEATTIE, J. M. *A Contribution to the Bacteriology of Rheumatic Fever.*
8. MUIR, R., and MARTIN, W. B. M. *On the Combining Properties of Opsonins of Normal Serum.*
9. *DELEZENNE, E. *The Acceleration of the Action of the Pancreatic Juice by the Salts of Calcium.*
10. BEEBE, S. P. *Nucleoproteid Immunity.*
11. FOLIN, O. *The Metabolism of Creatin and Creatinin.*
12. MENDEL, L. B. *Chemical Studies on Growth.*
13. MOORE, B., ROAF, H. E., and WHITLEY, E. *The Effect of Iron on Growth and Cell Division.*
14. HUNT, R., and TAVEAU, R. DE M. *On the Physiological Action of Certain Cholin Derivatives and New Methods for Detecting Cholin.*
15. SCOTT, F. H. *On the Liberation of Phosphorus from Nuclein Compounds.*
16. BARGER, G., CARR, F. H., and DALE, H. H. *An Active Alkaloid from Ergot.*
17. NICLOUX, M. *Estimation of the Quantity of Chloroform in Blood and Tissues.*

18. Kemp, G. T., Harris, C.E., and Calhoun, H. *Some Observations on the Microchemistry of the Blood Plates.*
19. Carrel, A., and Guthrie, C. C. *Transplantation of Blood Vessels and Organs.*
20. Hodge, C. F., Dellinger, O. P., and Duncan, F. W. *Evolution of Elementary Tissues in Relation to Physiological Function.*
21. Herring, P. T., and Simpson, S. *The Lymphatics of the Liver.*
22. Macleod, J. J. R. *Experimental Glycosuria.*
23. Henderson, V. E. *On the Excretion of Urine.*
24. Clarke, R. H., and Horsley, V. *On a Method of Investigating the Deep Ganglia and Tracts of the Central Nervous System (Cerebellum).*
25. Lapicque, L. *The Electrical Excitation of Nerves and Muscles.*
26. Mott, F. W. *The Physiological Significance of the Convolutional Pattern in the Primates.*
27. Simpson, S., and Herring, P. T. *The Conduction of Sensory Impressions in the Spinal Cord.*
28. Roaf, H. E., and Sherrington, C. S. *The Mechanism of "Locked Jaw" Produced by Tetanus Toxine.*
29. Lee, F. S. *The Causes of Fatigue in Certain Pathological States.*
30. Meltzer, S. J., and Auer, J. *Vagus Reflexes upon Œsophagus and Cardia.*
31. Dixon, W. E. *Vagus Inhibition.*
32. *Morrow, W. S. *The Various Forms of the Negative or Physiological Venous Pulse.*
33. Henderson, Y. *Acopnia as a Factor in Shock.*
34. Tooke, F. T. *Chronic Suppurative Dacryocystitis and Its Radical Treatment.*

1. MacCombie describes the twofold character of the rash in scarlet fever, a finely punctate papular portion and an erythematous portion. The first is the more important for diagnosis. He then speaks of the various erythemata which may simulate this scarlet fever rash, as found in measles, smallpox, chickenpox, enteric fever, scalds and in diphtheria after antitoxin. He describes skin hemorrhages as seen in diphtheria and emphasizes the extremely bad prognosis in these cases. In two hundred cases with hemorrhages in his own experience, death resulted in nearly all.

3. Klotz does not agree with Sores' narrow limitation of the term "arteriosclerosis," but takes it in its broader sense, including all varieties of scleroses or hardenings of the arteries. There may be two or more processes in this disease of the vessel walls. Early experiments on artificial arteriosclerosis have merely shown that all the coats of the arteries take part in an inflammatory process by direct extension from without. Despite many attempts very little advance was made in the experimental production of this condition until 1903, when Josué injected adrenalin into the veins of rabbits and produced definite pathological changes in the vessels. Klotz has confirmed these experiments, using adrenalin and barium chloride, with similar arterial changes with each drug. In no instance did he note a primary change in the intima. When drugs are given to lower blood pressure, along with the adrenalin, the arteries are still affected. The part most severely affected is the thoracic aorta. He produced an infective arteriosclerosis by using cultures of B. typhosus and streptococcus. With injections of these organisms he found thickenings of the intima, but no calcification, thus differing entirely from the lesions produced by adrenalin and barium chloride. Lesions were found in the pulmonary artery, while when adrenalin was used the aorta and its branches alone were involved; the changes were purely of a proliferative nature. When diphtheria toxin was used only a degenerative type of sclerosis was found similar to that from adrenalin. He concludes: (1) That drugs causing high pressure produce degenerative changes. (2) The muscle cells of the media are first attacked. (3) This is followed by fatty changes, then calcification. (4) Secondary changes in the intima are of a proliferative nature.

7. Beattie believes that the bacterial origin of rheumatic fever needs no defense; it is only as to the nature of the specific organism that there is room for discussion. He deals chiefly with various objections which have been raised to the view that the diplococcus of Wassermann is the causal agent. The fact that this diplococcus is found early in the disease in special localities and not in the blood stream would show that it is not merely a terminal infection. That this organism is not merely a variety of the streptococcus pyogenes he considers well proved. In its morphological characteristics and staining reactions it is indistinguishable from streptococcus pyogenes; culturally it is quite distinct. He summarizes his results in inoculation experiments using the micrococcus rheumaticus in one series and the streptococcus in another, showing the marked differences in results obtained from these two organisms. He thinks it is proved beyond a doubt that the micrococcus rheumaticus is a distinct organism.

9. Delezenne has shown by experiment that a small amount of lime salts mixed with pancreatic juice has a remarkable action, which he believes to be specific, in accelerating the digestive power.

32. Morrow gives a full exposition on physiological venous pulse. Thus was first described by Morgagni in 1762 and ever since has been a subject of dispute. In a pulse tracing over a vein there are found six distinct waves to every beat. The cause of each of these waves, positive or negative, he discusses in detail, illustrating with many tracings. He concludes that a so-called auricular venous pulse is a normal occurrence in man. He used the Baltimore kymograph and Hürthle's large kymograph with a membrane manometer.

Deutsche Medizinische Wochenschrift, No. 51. Dec. 20, 1906.

1. *Barth, A. *The Differential Diagnosis of Peritonitis.*
2. Haberern, J. P. *The Diagnosis of Incarcerated Femoral Hernia.*
3. Franck, O. *Intubation Stenosis of the Larynx Following Secondary Trachectomy.*
4. Opitz, E. *Vaginal Douches and Disinfection of the Hands.*
5. *Offergeld. *A Case of Sciatica Due to Retroflexion of the Uterus.*
6. Gomperz, B. *An Artificial Membrana Tympani of Paraffin and Silver.*
7. Schindler, C. *The Treatment of Gonorrheal Epididymitis.*
8. *Klug. *Viscolan., a New Basis for Ointments.*
9. Uhlenhuth, P. *Diversion of the Complement and Differentiation of the Albumins of the Blood.*
10. Klose, H. *The Hemorrhagic Diathysis in Scarlet Fever, with Remarks on the Gelatine Treatment.* (Continued article.)
11. Feilchenfeld, W. *Are "Orthocentric" Eye Glasses to be Recommended?*
12. Durante, F. *Surgery among the Arabs.* (Concluded.)

1. Barth points out that the symptoms of the early stages of septic peritonitis are different from those usually given in the text-books. Fever is practically always present at the outset, but may be lacking in the later stages. The pulse is at first full and not over 100; it is only in the last stages that the Hyppocratic facies and rapid thready pulse are observed. Vomiting is constant in those cases that start from the appendix. Spasm of the abdominal wall is always present in cases of appendicial origin, and its extent shows how much of the peritoneum is involved. Spasm is lacking, however, in those cases in which the appendix is walled off and the abdomen is filled with a sterile serous exudate. Meteorism is another symptom given in the text-books, but not present in the early stages, when the abdomen is usually retracted. The gonorrheal pelvic peritonitis on the other hand shows a rapid pulse and meteorism from the beginning, but spasm is lacking. The diagnosis can be made from the marked tenderness on palpation of the posterior cul-le-sac and on movement of the uterus. The distinction between these two forms of peritonitis is usually possible from the criteria above mentioned, and is important because the appendicial form demands immediate operation, while the gonorrheal usually subsides in a few days, if let alone. Puerperal peritonitis resembles that due to the gonococcus in the presence of meteorism and the absence of spasm.

5. Offergeld's case of sciatica was due to pressure on the right sciatic nerve from a retroverted adherent uterus.

Neuritis was probably present, for there were sensory disturbances and loss of the Achilles tendon reflex. An operation for the correction of the uterine displacement resulted in complete cure.

8. Viscolan is a new salve containing viscin, a sticky substance derived from the bark of certain plants. It owes its virtue to ability to absorb secretions, and is excellent in the treatment of chronic ulcers of the leg.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 51. DEC. 18, 1906.

1. *SCHÖNE, G. *The Production of Immunity against Cancer in Mice.*
2. SCHWAB, M. *Venous Thombosis and Coagulability of the Blood.*
3. MARTIN, M. *Studies on the Influence of the Tropical Sun on Pathogenic Bacteria.*
4. FRANKE, E. *The Surgical Treatment of Appendicitis and Its Sequels.*
5. HERZ, M. *The Surgical Treatment of Paralytic Flail Joints.*
6. PRIBRAM, E. *The Behavior of Agglutinins in Passive Immunization.*
7. HOEFLMAYR, L. *Three Cases of Neuralgia of the Tongue.*
8. REICHERT, C. *A New Condensor Designed to Render Ultramicroscopic Bodies Visible.*
9. KUHN, F. *The Use of Net Lace (Tüll) in Skin Grafting.*
10. WRZOSEK, A. *Remarks on the Aërobic Cultivation of an Anaërobic Bacteria.*
11. KOSSMANN, B. *Statistics on Gonorrhea.*
12. *HOFFMANN and FRÄNKEL. *Infantile Scorbutus.*
13. *VIERORDT, O. *The Value of Physical Methods of Treatment in General Practice.* (Concluded.)
14. KNAUER, G. *Negative Diagnosis.*

1. Schöne reports, from Ehrlich's institute, results of work on the production of artificial immunity against cancer in mice. It was shown by Jenson, Ehrlich and others that immunity against the form of cancer found in mice can be produced in these animals by injections of emulsion formed from these tumors. This immunity protects not only against cancer, but against sarcoma and to a slighter degree against chondroma. Schöne was able to produce a similar immunity by the injection of emulsion of normal mouse embryos. Injections from various organs of mice showed only a slight immunizing power, possibly due to the blood they contained, for Bashford has shown that the injection of mouse blood may produce immunity. The author leaves it open whether this form of immunity is identical with that obtained by the injection of tumor emulsion.

12. Polemic between Hoffmann and Fränkel on priority.

13. Vierordt emphasizes the importance of individualizing in the use of physical methods of treatment (balneo-, climato- and hydro-therapy, etc.). Such treatment is best carried out by specialists, but should be under the general direction of the practitioner, for the former's point of view is necessarily limited and he cannot direct general treatment as well as the family physician. Explicit directions should be given in writing in every case as to the duration, grade and form of therapy to be administered. The general practitioner should make himself acquainted with the different forms and indications for the use of the physical methods.

ZEITSCHRIFT F. KLIN. MEDIZIN. BD. 60, HFT. 5 AND 6.

1. *SENATOR. *Erythrocytosis (Polycythemia Rubra) Megalosplenica.*
2. MOSSE. *Changes in the Liver Cells of Nephrectomized and Fasting Animals, a Contribution to the Knowledge of Acidosis.*
3. *GÉRONNE. *A Contribution to the Knowledge of Alternatingly Dilated (springenden) Pupils.*
4. GÉRONNE. *Erythema Nodosum Hemorrhagicum and the Relation of Erythema Nodosum to Purpura.*
5. *BIBERGEIL. *Experimental Investigations on the Presence of Sugar in Nephritic Hydrops.*
6. *BRODZKI. *The Secretion in Nephritic Urine of Proteids Which Alter the Coagulation Time of Blood Plasma.*
7. *GEORGOPULOS. *An Experimental Contribution to the Study of Renal Edema.*
8. *BLANCK. *An Experimental Contribution to the Pathogenesis of Renal Edema.*
9. *LEOPOLD. *Hemolysis in Nephritis.*
10. *LEOPOLD. *The Action of Salts on the Kidneys (in Animals).*
11. STRAUSS. *Observations on the Water Content of the Blood Serum in Cardiac and Renal Edema. A Contribution to the Question of the Origin of Hydrops.*

All of the papers in this number come from the clinic of Professor Senator in Berlin. Most of them concern the problem of nephritis.

1. Senator reports two cases of polycythemia with careful studies of the blood, nitrogen metabolism and respiratory gases. He believes that in this disease there is an increased formation rather than a decreased destruction of red blood cells.

3. Géronne describes a case in which at times the right pupil was dilated, at other times the left. This change followed change in the patient's posture, the pupil on the side on which the patient had been lying was the one dilated. Autopsy revealed a high grade mitral stenosis with considerable enlargement of the left auricle. The writer believes the phenomenon was due either to the pressure on the cardiac branches of the sympathetic nerves of an enlarged abnormally movable heart, or to intracranial pressure changes, resulting from obstruction produced by the heart and in the region of the superior vena cava, the degree varying with changes in the heart's position. The causative relation of the enlarged heart seemed undoubted and is noted for the first time in this case.

5. Richter has shown that the injection of uranium nitrate in animals results in the production of a nephritic hydrops. Fibergeil found in rabbits that the fluid of such a hydrops regularly contained glucose, but that this could not be increased in amount by the simultaneous ingestion of sugar or the use of phloridzin.

6. Brodzki by salting and dialyzing obtained from the urine of nephritics a proteid substance which decreased the coagulation time of blood plasma.

7. Georgopulos discusses the very extensive literature of renal edema and especially that bearing on the question of the causative relation of salt retention. In the experimental nephritis of rabbits he has studied carefully the urine, blood, hydropic fluid and body tissues with reference to their chloride and water content, freezing point and refraction index. As a result of this he concludes that there is no constant relation between the water and chloride excretion of the kidney. In cantharides and uranium nitrate nephritis there is no evidence that the water retention is due to a chloride retention; on the contrary, there appears to be a primary disturbance of the water secreting power of the kidney. In these animals there is a hydremic plethora, but that alone is not sufficient to produce edema since it can exist without there being edema. In addition to the hydremia some toxic substance must be present to act on the blood vessels and cause a transudation. This substance is present in uranium nephritis, but not in some other forms of experimental nephritis. Georgopulos thinks that the therapeutic reduction of water taken by a nephritic patient is not justifiable in cases in which the water secreting power of the kidney is not reduced, since the increased fluid may serve to dilute toxic substances in the body and prevent edema. Moreover, a certain amount of edema may be considered a conservative process for this same reason.

8. Blanck shows that in experimental nephritis without hydrops, hydrops can usually be obtained by injections of the serum obtained from animals in which nephritis has been produced by uranium nitrate. The substance contained in the serum has a lymphagogic action.

9. Leopold shows that the urine of both natural and experimental nephritis has an increased hemolytic action. Ascitic fluid is also hemolytic.

10. Rabbits given small doses of sodium chloride by mouth show a distinct albuminuria in four days, with hyperemia and cloudy swelling of the kidneys. Later, the

changes are more marked, with granular degeneration, and, in some cases, intracapsular exudate. The feeding of sodium phosphate produces fatty degeneration in three days and the renal changes following the ingestion of phosphates are more severe than those following chlorides. Both these substances exert an injurious influence on the kidneys and in the dietary of nephritics should be avoided as much as possible.

Miscellany.

CREMATION IN GREAT BRITAIN.

Cremation continues to make steady if somewhat slow progress in Great Britain. Mr. Herbert T. Herring, medical referee of the Cremation Society of England, has obligingly supplied us with the following figures: The total number of cremations in Great Britain during the year 1906 was 742, being an increase of 138 on the number for the previous year. The total number of crematories now at work is 13. Of these the oldest is at Woking, which was opened in 1885; next in order of foundation come Manchester (1892), Glasgow (1895), Liverpool (1896), Hull and Darlington (1901), Golder's Green and Leicester (1902), Birmingham (1903) and Ilford (City of London Corporation), Leeds (Municipal), Bradford and Sheffield (1905). The cremations were distributed among these various places as follows: Golder's Green, Hampstead, 298; Woking, 140; Manchester, 90; Liverpool, 46; Glasgow, 44; Birmingham, 25; Ilford, 23; Leeds, 15; Hull, 17; Darlington and Bradford, each 13; Leicester, 12; Sheffield, 6. It will be seen that Golder's Green still heads the list. There were 42 more cremations in 1906 than in the previous year, and the total number since its opening in 1902 is 933. Woking shows a somewhat larger increase (45) during the past year; the total number of cremations carried out there since 1885 is 2,888. Manchester shows a slight falling off (7) as compared with 1905; the total number since 1892 is 1,028. Of the other places, Ilford shows an increase during last year of 14, Bradford of 12, Liverpool of 11, Glasgow and Darlington of 9, Birmingham of 3; on the other hand, cremations have fallen off at Leicester by 4 and at Leeds and Sheffield by 1. The total number of cremations carried out in this country since 1885 is 5,763. From the facts here stated we think it may fairly be deduced that the public mind is gradually becoming habituated to the idea of cremation; appreciation of the advantages of that mode of disposing of the bodies of the dead can scarcely fail to follow a wider diffusion of hygienic knowledge.

We respect the difficulty felt by many on religious grounds, though we cannot say we understand it; for, as Bishop Fraser has well said: "The omnipotence of God is not limited, and he would raise the dead whether he had to raise our bodies out of churchyards, or whether he had to call our remains, like the remains of some ancient Romans, out of an urn in which they were deposited two thousand years ago." Another objection is the supposed costliness of cremation as compared with burial. There seems to be no solid ground for this belief; some figures before us show that at Golder's Green the average cost of cremation, together with a niche in the columbarium and a memorial tablet, is thirteen guineas. An estimate of the cost of burial, with a memorial stone, based on the average cost of interment in the ordinary ground at six London cemeteries, is eighteen guineas. — *British Medical Journal.*

Correspondence.

THE RUTLAND SANATORIUM: CORRECTIONS.

Pittsfield, Mass., Jan. 15, 1907.

Mr. Editor: Permit me to explain a little more fully the changes at the Massachusetts State Sanatorium at Rutland, which were mentioned in the Journal of Jan. 10, under the head of "Medical Notes." The new superintendent, Dr. Frederick L. Hills, who is to take charge Feb. 1, will assume the duties, both of the present superintendent, Dr. W. J. Marcley, and of the two visiting physicians, Dr. E. O. Otis and H. C. Clapp. Dr. Marcley has been appointed Superintendent of the new State Sanatorium, of Minnesota, and has tendered his resignation, to take effect Feb. 1. Drs. Otis and Clapp have also placed their resignations in the hands of the trustees, but these have not yet been accepted, as it seems best that all the changes should not be made simultaneously.

Yours very truly,
J. F. A. Adams, M.D.,
Chairman, Board of Trustees,
Massachusetts State Sanatorium.

Worcester, Mass., Jan. 14, 1907.

Mr. Editor: In your recent report (Jan. 10) of the Rutland Sanatorium, you state that Dr. Frederick L. Hills, of Concord, N. H., had been appointed as medical resident superintendent of the institution and that Dr. Edward O. Otis had resigned his position as visiting physician. The name of the senior visiting physician, Dr. H. C. Clapp, was not mentioned at all. Whether your informant was ignorant of, or purposely ignored, the relation of Dr. Clapp to the institution and the action of the board at our last meeting, I do not know, but in justice to all concerned I wish to say that while the resignations of both visiting physicians to take effect upon the appointment of an "expert on tuberculosis" as resident superintendent, have been in the hands of the board for some time, as yet they have not been accepted and, at the last meeting in which Dr. Hills was elected to succeed Dr. Marcley as superintendent, it was unanimously voted "to request the visiting physicians, Dr. H. C. Clapp and Dr. Edward O. Otis, to continue their services as heretofore until further notice."

Trusting the above statement may correct any erroneous impressions produced by your previous article, I am respectfully yours,

J. P. Rand,
Secretary Board of Trustees,
Massachusetts State Sanatorium.

OPPOSED TO LODGE OR CORPORATION WORK BY CONTRACT.

Medford, Mass., Jan. 14, 1907.

Mr. Editor: At a meeting of the Medford Medical Society, Nov. 27, 1906, the following was adopted:

"*Resolved*, That the Medford Medical Society does not countenance or approve of lodge or corporation work by contract; and we, physicians of Medford, hereby pledge ourselves not to engage in such service. And it is further

"*Resolved*, That this Society will not hereafter accept nor continue as a member any physician who may take up this work."

To this all the resident physicians of Medford, twenty-three in number, have subscribed their names.

Very truly yours,
Frank S. Smith, M.D., *Secretary.*

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 5, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,721	417	Quincy	7	—
Chicago	673	190	Waltham	9	2
Philadelphia	—	—	Gloucester	5	1
St. Louis	—	—	Pittsfield	14	—
Baltimore	230	51	Brookline	11	—
Cleveland	—	—	North Adams	—	—
Buffalo	—	—	Chicopee	8	1
Pittsburg	—	—	Northampton	9	0
Cincinnati	—	—	Medford	4	2
Milwaukee	—	—	Beverly	5	1
Washington	—	—	Hyde Park	5	1
Providence	81	32	Newburyport	—	—
Boston	273	56	Leominster	8	4
Worcester	37	12	Melrose	6	1
Fall River	42	21	Woburn	2	—
Cambridge	31	10	Marlborough	5	0
Lowell	38	12	Westfield	10	3
Lynn	18	3	Peabody	—	—
New Bedford	34	10	Revere	3	1
Springfield	24	—	Clinton	5	1
Lawrence	20	15	Attleboro	1	0
Somerville	19	3	Adams	4	—
Holyoke	26	7	Gardner	—	—
Brockton	12	3	Milford	4	3
Malden	8	3	Weymouth	—	—
Salem	12	1	Framingham	3	1
Chelsea	16	5	Watertown	2	—
Haverhill	9	1	Plymouth	—	—
Newton	12	—	Southbridge	4	—
Fitchburg	9	2	Wakefield	—	—
Taunton	9	2	Webster	—	—
Everett	13	5			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JAN. 12, 1907.

J. T. KENNEDY, passed assistant surgeon. To duty on the U. S. R. S. "Hancock."

E. M. BLACKWELL, passed assistant surgeon. To duty at the Naval Academy, Annapolis, Md., as the relief of Assistant Surgeon R. E. Hoyt.

A. M. MOORE, surgeon. Retired. Detached from duty at the Naval Recruiting Station, Memphis, Tenn., and ordered home.

W. B. GROVE, surgeon. To duty at the Naval Medical Supply Depot, Brooklyn, N. Y., and additional duty under instructions from the Bureau of Medicine and Surgery.

R. E. HOYT, passed assistant surgeon. Detached from duty at the Naval Academy, Annapolis, Md., and to duty at the Naval Hospital, Canacao, P. I., as the relief of Assistant Surgeon H. W. Smith.

H. W. SMITH, assistant surgeon. On the reporting of his relief detached from duty at the Naval Hospital, Canacao, P. I., and to home by the way of Europe, with permission to delay two months in Europe.

E. C. TAYLOR, passed assistant surgeon. Detached from duty at the Naval Hospital, New York, N. Y., and to duty at the Naval Recruiting Station, Memphis, Tenn., in place of Surgeon C. J. Decker, whose orders for this duty the Bureau recommends revoked.

J. H. HOLLOWAY, passed assistant surgeon. Detached from duty at the Navy Yard, Norfolk, Va., and such other duty as may have been assigned him, and to duty with the Navy Recruiting Party No. 4.

APPOINTMENTS.

TUFTS COLLEGE MEDICAL SCHOOL.

DR. JOHN J. THOMAS, assistant professor of neurology.

DR. DAVID N. BLAKELEY and DR. LEANDER M. FARRINGTON, assistants in clinical medicine.

DR. JOSEPH A. MEHAN, assistant in general chemistry.

BOSTON CITY HOSPITAL.

DR. J. J. THOMAS, physician for diseases of the nervous system, to fill the vacancy caused by the resignation of DR. W. N. BULLARD.

DR. ISADOR CORIAT, assistant to the physicians for diseases of the nervous system.

DR. ROCKWELL A. COFFIN, surgeon for diseases of the throat, in place of DR. JOHN W. FARLOW resigned.

DR. J. H. BLODGETT, assistant to the surgeons for diseases of the throat.

DR. HERMAN M. ADLER, assistant in clinical pathology.

HARVARD MEDICAL SCHOOL.

DR. JAMES HOMER WRIGHT, assistant professor of pathology. Dr. Wright has been instructor in pathology from 1896 to the present time.

The following assistants in the Clinical Laboratory: DRS. H. M. ADLER, G. W. HALL, C. L. OVERLANDER and W. B. ROBBINS.

MASSACHUSETTS GENERAL HOSPITAL.

DR. WM. A. BROOKS, JR., visiting surgeon.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A meeting of the society will be held in Sprague Hall, Medical Library Building, on Monday, Jan. 21, 1907, at 8. The papers of the evening will be on Empyema. Its Medical Aspects, Dr. H. F. Vickery. Its Surgical Aspects, Dr. F. B. Lund.

DANIEL FISKE JONES, M.D., *Secretary.*

RECENT DEATHS.

BENJAMIN HUBBARD, M.D., M.M.S.S., died in Plymouth, Jan. 12, 1907, aged eighty-nine years.

WALTER AUGUSTUS LECOMPTE, M.D., M.M.S.S., died in Boston, Jan. 13, 1907, aged thirty-six years.

DR. DANIEL S. ADAMS died at Manchester, N. H., Jan. 12, at the age of sixty years. He was born in Lockport, N. Y., graduated from the College of Physicians and Surgeons (Columbia) and almost immediately took up practice in Manchester. He was prominent and successful as a surgeon, and was an ex-president of the New Hampshire State Medical Society.

DR. EDWARD GILMAN BRYANT, of New York, died in Bellevue Hospital on Jan. 7, from chronic Bright's disease. He was graduated from the Harvard Medical School in 1892. For some years he was resident physician at the Willard Parker Hospital and later at the Health Department's hospital for contagious diseases on North Brothers Island. More recently he was engaged in private practice at Washington Heights, where he devoted his attention more especially to diseases of the throat.

DR. ALFONS MULLER, of New York, died on Jan. 9 from pneumonia, at the age of forty-five years. He was a native of Germany, and was graduated from the University of Halle in 1886.

DR. ALFRED STARR, of New York, died on Jan. 11. He was graduated from the College of Physicians and Surgeons, New York, in 1880.

BOOKS AND PAMPHLETS RECEIVED.

Jahresbericht über die Fortschritte in der Lehre von den Pathogenen Mikro-organismen umfassend Bakterien, Pilze und Protozoen Unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben. Von Dr. med. P. von Baumgarten und Dr. med. F. Tangl. Zwanzigster Jahrgang. 1904. Leipzig: Verlag von S. Hirzel. 1906.

Unilateral Ascending Paralysis and Unilateral Descending Paralysis. Their Clinical Varieties and Their Pathologic Causes. By Charles K. Mills, M.D. Reprint.

A Case of Rhizomelic Spondylosis. Service of Dr. Charles K. Mills. Reported by Dr. Ralph Pemberton, Resident Physician. Reprint.

The Subdivision of the Representation of Cutaneous and Muscular Sensibility and of Stereognosis in the Cerebral Cortex. By Charles K. Mills, M.D., and T. H. Weisenburg, M.D. Reprint.

Manual of Clinical Chemistry. By A. E. Austin, A.B., M.D. Boston: D. C. Heath & Co. 1907.

Transactions of the American Dermatological Association at its Twenty-ninth Annual Meeting Held in New York, Dec. 28, 29 and 30, 1905.

Tumors of the Cerebrum, Their Focal Diagnosis and Surgical Treatment. By Charles K. Mills, M.D., Charles H. Frazier, M.D., William G. Spiller, M.D., George E. DeSchweinitz, M.D., Theodore H. Weisenburg, M.D. Illustrated. Philadelphia: Edward Pennock. 1906.

Physical Chemistry in the Service of Medicine. Seven Addresses. By Dr. Wolfgang Pauli. Authorized translation by Dr. Martin H. Fischer. London: Chapman & Hall, Ltd. New York: John Wiley & Sons. 1907.

Original Articles.

ACUTE HEMATOGENOUS INFECTION OF ONE KIDNEY IN PERSONS APPARENTLY WELL. REPORT OF A CASE AND A STUDY OF THE SUBJECT.

BY FARRAR COBB, M.D., BOSTON,
Surgeon to Out-Patients at the Massachusetts General Hospital.

It is well understood that in the presence of a septic focus elsewhere, metastatic or embolic abscesses may occur in one or both kidneys, but what is not so much a matter of common knowledge is that occasionally in an individual apparently well, and in whom no septic focus can be demonstrated, an infection of one kidney by bacteria circulating in the blood may take place with the formation of one or more septic infarcts. Clinically such infections may simulate one of the acute abdominal emergencies; especially is this true of infections of the right kidney where the onset and course can correspond with great exactness to the symptoms of acute appendicitis or acute cholecystitis. Comparatively few such cases have been reported and it is only recently that they have begun to be studied carefully. Several of the cases have been diagnosed and operated upon incorrectly. The pathology and the reason for the localization of the bacteria in one kidney in an apparently healthy individual is not understood perfectly as yet. For the above reasons I desire to report the following case and afterward discuss the subject from a pathological as well as a clinical standpoint.

Mrs. M. C. D., forty-five years old, married, was brought to the accident room of the Massachusetts General Hospital on the evening of Oct. 19, 1903. The following history was obtained: She had always been a well woman. She had had three children, the youngest eight years old. Catamenia had always been regular, the last, two weeks before. For two days before admission she had felt somewhat tired, but had noticed no other bad symptoms. Twenty-four hours before, she was suddenly taken with severe pain in the right iliac region just inside the iliac crest; the pain ran upward into the back at its onset and the patient noticed that at this time she was obliged to pass water frequently and that micturition caused some pain, although nothing peculiar about the urine was noticed. A chill occurred at the onset. The pain persisted in the right iliac region, but had become less since the beginning of the attack; there was some pain in the right back on moving. The frequency of micturition soon stopped. After a dose of epsom salts twelve hours before entrance there was some vomiting, but not until then. The bowels moved well six hours before entrance. Upon examination the patient was found to be a well developed and nourished woman, somewhat pale, apparently having much pain. Pressure in the right iliac region and over the right kidney and up toward the gall bladder caused some muscle spasm and developed some tenderness. The right kidney could not be palpated. Nothing abnormal was found in the chest, nothing of importance upon vaginal examination. Pain in the right side of the abdomen with some muscle spasm and tenderness, most marked over the region midway between the appendix and liver, were the only important signs. The blood count showed 22,600 leucocytes; the temperature was 101.6° and rose later in the evening to 103°; the pulse was 130. Urine examination at this time showed a slight trace of albumin, a specific gravity of 1023, normal color and acid reaction, sediment, much pus and a few abnormal blood globules and an occasional cast with blood cells adherent.

Were it not for the fact that the onset of the attack had been associated with pain radiating into the right lumbar region associated with frequent micturition and that the urine examination showed a little blood and a few blood casts, the symptoms and signs, especially the high leucocyte count and the spasm anp tenderness on the right side, would have led me to operate soon after the patient entered the hospital under a diagnosis of appendicitis or acute cholecystitis, but for these reasons operation was deferred and the patient sent to the ward. Renal calculus, it seemed to me, would have caused more intense colicky pain and could not account for the abdominal signs or the leucocytosis. During the next two days there was considerable pain at times. Twenty-four hours after admission the pain seemed to be localized more in the region of the right kidney, where it was possible to palpate a mass. The leucocyte count remained approximately the same on each day preceding the operation. There was no change in the urine examination. The patient's temperature and pulse were somewhat lower than at first. Operation was determined upon because of the localization of the pain and tenderness in the region of the kidney and the possibility of an enlargement of the kidney, associated with the continued high leucocyte count. It should be said also that the patient looked like a very sick woman. A correct diagnosis was not made before operation. The possibility of an infected kidney associated with stone or with blocking of the ureter from some cause was considered, but certainly no consideration was given to acute infection of the kidney through the blood.

On the third day ofter admission, through the kindness of Dr. H. H. A. Beach, the senior surgeon of the South Service, the patient was operated upon by me. With the patient on the left side, an incision was made over the right kidney from the twelfth rib downward to and along the crest of the ileum. The kidney was found enlarged to about twice the normal size; it was dark colored and on its surface were four areas about one half of an inch in diameter, dark in appearance, looking like spots of infarction. All of these areas were soft and seemed to contain old blood clot with some broken-down kidney tissue, but in none of them was there any gross appearance of pus. One of these areas reached well into the cortical substance of the kidney toward the pelvis, the remainder were superficial. With the exception of these areas of infarction, the kidney appeared normal except for the dark congested look. Cultures from the areas gave a pure growth of colon bacilli. A small bit of tissue from one of the softened spots was removed for microscopic examination.

The capsule of the kidney was split posteriorly and small gauze wicking drains were pushed well down into each softened spot. The ends of these wicks were led out of the external wound. A large gauze drain surrounded by rubber tissue was led down to the kidney itself and the external wound in the flank closed up to the drains. It is interesting to note that the operation made no change in the condition of the urine, which remained the same until one week before the patient was discharged from the hospital when all appearances of blood and almost all pus had disappeared. The amount of urine continued between thirty-five and forty ounces each day after the operation. The leucocyte count two days after the opera-

tion was still as high as previously, 22,000; but four days after the operation it dropped to 7,000. The gauze drains were removed within five days and the wound irrigated. There was an entire cessation of pain and convalescence was rapid. On the 26th of November, about a month after her operation, the patient left the hospital with the wound entirely healed and in good physical condition. Microscopic examination of the small bit of tissue removed showed marked engorgement of all the vessels with considerable hemorrhage throughout the cortical substance.

I have heard from this patient once or twice since the operation and she reports herself as perfectly well.

In this case, blood and renal elements in the urine, with pain in the back at the onset of the attack, associated with frequency of micturition, prevented immediate operation as for an acute peritoneal emergency. As will be seen later, cases have occurred in which the urine and symptoms in no way pointed to the kidney, which cases have been operated on under the mistaken diagnosis of appendicitis or cholecystitis.

Infection of the kidneys may be an ascending infection from the lower urinary tract, the so-called urogenous type, or an infection through the blood, the hematogenous type; infection may take place also by direct extension from abscesses in the neighborhood or through wounds. In any condition of the human organism where bacteria are abundant in the blood stream, as in general infectious diseases, or where local septic foci exist, hematogenous infection can occur, provided the conditions favor it. This infection may be mechanical, that is, actual minute bits of infected tissue are carried by the blood to the kidney and lodge in some of the terminal vessels. This is the commonest form of hematogenous infection and is to be expected in extensive suppuration elsewhere, in septicemia, pyemia, ulcerative endocarditis and the like. In the pre-antiseptic days, when septicemia and pyemia were common, these true embolic infections, usually of both kidneys, were a not infrequent cause of death.

On the other hand, the infection may be by micro-organisms themselves which are circulating in the blood and which for some reason are arrested in the kidney vessels. This is the rarest form, and although it may occur in any of the septic conditions mentioned or in general infectious diseases, as typhoid, scarlet fever and measles, it is of great importance to know that it can occur in persons previously in perfect health. This infection usually involves only one kidney.

The gross and minute pathology of the two forms varies somewhat. In the embolic abscesses in the majority of cases, actual plugs of infected tissue lodge in the vessels, and the condition of the kidney previous to the arrival of these septic plugs has nothing to do with the issue. The plugging of the terminal vessels causes an infarct and this infarct becomes infected by the bacteria in the plug itself.

The acute hematogenous infections due to the lodgment of bacteria circulating in the blood, which, as I have said, usually involve only one kidney, are more interesting pathologically because some abnormality in the kidney or ureter is the probable cause of the arrest of the bacteria. These infections are of intense interest from a clinical and practical point of view and also from a bacteriological standpoint; especially is this true in those cases occurring in persons previously in good health. The questions of the kind of bacteria causing the infections and where these bacteria come from in persons apparently perfectly well and why they infect one kidney have been a subject of some speculation and experimental study.

In the existence of septic conditions or general infectious disease it is easier to suspect an infection of the kidney as a complication in the presence of the symptoms as outlined in my own case than when such symptoms come out of a clear sky. Very few cases have been reported. It is interesting to note that in practically all the cases the infections involve the right kidney, but no explanation for this has been offered. The onset is acute and in well persons comes without any warning. The course of the disease may be rapid with progressively increasing toxic symptoms; or after the acute onset, the patient may go for weeks or months in a chronic septic condition. The very acute cases are the ones that simulate most closely abdominal emergencies. On the other hand, in a small number of cases the infection may manifest itself by a slight pain in the back and a long continued pyrexia with or without pyuria which may never lead to a suspicion of the kidney as a cause.

In the reported cases the bacterial infections through the blood in persons previously in good health have caused acute symptoms. It is not difficult to understand, however, that in any condition of health or disease bacterial localization may take place in one or more of the terminal vessels of the kidney causing at the time but slight symptoms; that such cases may go on to more or less extensive abscess formation with breaking of the abscess or abscesses into the pelvis of the kidney or through the capsule into the perirenal tissue. In advanced stages of renal abscess it is always difficult, if not impossible, to decide whether the infection came through the blood or from the lower urinary tract. Acute infections as described in this paper are undoubtedly rare. Johnson analyzed all the cases of kidney surgery in the Roosevelt Hospital for eight years previous to Oct. 1, 1898, and in this time he found operations upon only twelve cases for renal abscess, and the majority of these had their origin undoubtedly in ascending infection and pyelitis. Johnson's series included but three cases in which it was probable that acute hematogenous infection of one kidney had occurred.

A careful search through the records of the Massachusetts General Hospital since 1883 has discovered only 18 cases of operation for abscess of the kidney, exclusive of the operations for cases of hydro- and pyelo-nephrosis. Of this number but four were cases of undoubted hematogenous infection. The majority of the cases

were complicated by stone, tuberculosis or long standing infection of the lower urinary tract.

Infection in one of the four cases occurred two months after a severe contusion of the lumbar region; in the other three cases, however, there was no contributing cause, infection occurring in a condition of apparent good health. In all four cases the infection had progressed to the stage of true abscess formation. One case was diagnosed and operated upon as a case of appendicitis, the other three were diagnosed as probable infections of the kidney on account of the existence of a palpable tumor in the kidney region. In two cases cultures were taken and both showed a pure growth of staphylococci. In two cases a leucocyte count was made; in one case the leucocytosis was 22,000 and in the other case 10,800. Urine examinations in three cases showed pus and blood; in two cases hyalin and granular casts were found in addition to the pus and blood. In two cases the onset was acute, while in the other two it was more moderate, from four to eight weeks elapsing between the first symptoms and operation.

It should be emphasized that in the course of some other disease bacterial infection of one kidney may not be recognized. Lilienthal lays great stress upon the fact that many of the large lumbar abscesses following typhoid and other infectious diseases may originate in abscesses in the cortex of the kidney with late perforation into the perirenal tissue.

The case just reported, from the time it came under my observation, was an acutely sick woman, although it is impossible to say how long she might have gone without fatal toxemia. At the operation the infarcts were still in a hemorrhagic stage and presented no gross signs of pus. The case reported by McCosh, following an attack of measles, was a fulminating case where the symptoms simulated acute appendicitis. The case reported by A. T. Cabot had a sudden onset and ran a very septic course with chills and high fever for two weeks before operation. In this case the pains were located in the back and ran into the groin and testicle. The case reported by C. H. Peck had a sudden onset with marked tenderness and rigidity in the right side of the abdomen, no symptoms or signs pointing to the kidney. Leucocytosis of 30,000. Operation done in sixty hours after the onset of the attack under a diagnosis of appendicitis.

Brewer has reported thirteen cases. In several a complete history was not obtained, yet it is fair to assume that the majority were cases of unilateral hematogenous infection, although one case at autopsy showed that both kidneys were affected. Five cases resembled, in the onset and symptoms, my own case very closely. In two cases an anterior abdominal incision was first made under a diagnosis of appendicitis or cholecystitis. Eleven of Brewer's cases occurred in women and the right kidney was involved in eleven cases. In twelve cases abdominal pain was the chief complaint during most of the attack, although in many cases at the beginning the chief point of pain was referred to the flank. In three cases the pain was located in the right iliac region. The kidney could rarely be palpated. In three cases there was complaint of frequent and painful micturition. The blood count was taken in 8 cases and was always high, the lowest 12,000, the highest 35,000. The percentage of polynuclear cells was 79 and above.

The infection is usually of the right kidney, and more cases have occurred in women than in men. In some of the cases the pain may be referred entirely to the region of the appendix or the gall bladder. Leucocytosis is always high, 18,000 to 30,000. There is some difference of opinion as to the evidence to be obtained from the urine examinations in these cases. Lilienthal is of the opinion that no positive help can be obtained in this way; on the other hand, Brewer, in the light of his large experience, states that in all but two of his thirteen cases the urine contained albumin, pus and blood; that the blood was only detected by the microscope except in one case in which there was enough to color the urine. In three cases urine from the separate ureters was obtained and that from the affected side showed albumin, pus and blood. In my own case blood casts were found in addition to pus and a small amount of blood cells. The reason, to my mind, for urine examinations giving no great aid to diagnosis in acute cases is because the infection usually involves the terminal arterial branches in the cortical substance of the kidney; and only in the advanced cases, when the infarcts have become abscesses and have broken into the pelvis of the kidney can pus and renal cellular elements in sufficient amounts be obtained by urinary examination. The presence of albumin, pus and blood, with or without blood casts, in the urine of a person previously in good health should lead to a strong suspicion of the kidney as a cause of the symptoms, but it is perfectly possible that the condition of the urine may be due to other causes.

The examination of the abdomen may give all degrees of tenderness and muscle spasm. The pain and tenderness may be referred to the gall bladder or appendix regions and the abdominal muscles guarding them may or may not be rigid. In those very acute cases simulating intra-abdominal disease there is muscle spasm in the regions mentioned, — in my own case the muscle spasm was not very marked. It has been possible to palpate an enlarged kidney in some of the cases, but not until the second or third day after the onset of the infection. Tenderness in the costovertebral angle is mentioned as a constant sign by Brewer.

It is plain that the differential diagnosis in these cases will be difficult unless the pain is referred distinctly to the kidney; the cases most exactly simulating appendicitis or acute cholecystitis cannot be accurately diagnosed. The presence of pus, blood and blood casts in the urine may justify a suspicion of the seat of the infection. It can be fairly stated that in septic conditions elsewhere, or in general infectious diseases, such an acute

picture should lead to consideration of an acute infection of the kidney.

The treatment should always be by operation even when the infection occurs as a complication of severe sepsis elsewhere. Witness the case reported by Lilienthal, in which embolic abscesses of the kidney followed severe facial erysipelas. In the reported cases the operations done have been about equally divided between nephrectomy and incision and drainage of the septic areas in the kidney, with or without splitting of the capsule. In my opinion nephrectomy can be necessary only when the septic areas are very numerous and extensive. But little of the secreting substance of the kidney is involved usually and at the operation one does not know about the integrity of the other kidney; it must be wise to preserve all the kidney secreting surface possible. My own case and that of A. T. Cabot's, also that of McCosh and one of Brewer's did perfectly well with drainage. In one case rubber drainage tubes were carried down into the infected parts of the kidney. It may be questioned whether the pressure of such substantial material as rubber tubing might not tend to cause progressive tissue necrosis. Not a sufficient number of comparatively similar cases have been reported to furnish grounds for a positive opinion as to the best form of operation. The degree of infection varies in each case as well as the condition of the patient in regard to the amount of toxemia and probable resistance to continued sepsis. The method of operation should be determined upon in each case at the time. In the very toxic cases in which the areas of infection are very numerous so that the function of the kidney is probably seriously interfered with, nephrectomy will be the operation of choice. In cases where the areas are limited in number and the resistance of the individual is still fairly good, drainage generally will bring about recovery.

As I have said, the interesting question is why bacteria circulating in the blood are arrested in sufficient numbers in the kidney to cause infection. The kidney can be infected through the blood by a number of organisms. Obviously, an infection carried by small emboli will be the same infection as the septic focus from which the emboli started. The common micro-organisms of pus, the streptococcus and staphylococcus, the typhoid bacillus, Friedländer's diplococcus, the bacillus of diphtheria, the bacillus pyocyaneus and the pneumococcus have all been isolated from renal abscesses. The most frequent infections are undoubtedly due to the colon bacillus and to pus organisms. It is to be emphasized that the colon bacillus causes by far the greatest number of infections and that these infections are usually pure infections; this is true, no matter whether the source is the blood or the urinary channels. (Herszky, Albarran, McWilliams.)

No mention will be made in this paper of infection of the kidney through the blood by tubercle bacilli. The subject of tuberculosis of the kidney is one that demands special consideration. Infection by the gonococcus is seldom, if ever, a pure infection and so far as is known is always the ascending form and not an infection through the blood. Herszky, however, states that while gonococcus infection of the kidney is an ascending infection and usually mixed, he can refer to a few cases of renal abscess in which the specific organisms of gonorrhea were found which probably originated through the blood. Le Fur has reported a case of probable hematogenous infection by the gonococcus.

Until recently it was thought that when large numbers of bacteria were in the blood, whether through general septicemia or in some diseases, as diphtheria, or experimentally by injection into the veins or the peritoneal cavity, that most of the bacteria passed through the kidneys and were eliminated by the urine, and that the chance of disturbing the functions of the kidneys was great. Recent experimental research, however, seems to prove that the majority of the organisms introduced into the circulation are destroyed before reaching the kidneys, and that while many bacteria are eliminated by the urine it is unusual for bacteria to lodge in the kidney, if the kidney and ureter are normal. The researches of Buxton and Torrey in the laboratory of experimental pathology of Cornell University, recently published, as well as the work of Metchnikoff and Canon, seem to prove this absolutely. It is, doubtless, true that one of the functions of the kidney is to excrete bacteria which have gained access to the circulating blood and have not become destroyed before reaching the kidney. Micro-organisms may be excreted by the kidneys without injuring the kidneys in any way. The finding of bacteria in the urine, as in typhoid fever, does not necessarily mean renal infection, only that certain of the bacteria from the general disease or from distant septic foci have passed through the kidneys.

Sampson, of Johns Hopkins, performed a series of experiments on dogs in which he tied the ureter of one kidney and injected pure cultures of staphylococcus into the jugular vein. He found that bacteria were eliminated to a certain extent by the urine, but only in those cases in which he tied the ureter did the kidney become infected. Brewer later, in a series of experiments on dogs, found that not only obstructing the ureter, but bruising the kidney caused infection.

The colon bacillus is the most frequent form of urinary infection, whether of the kidney or of the bladder. It is now well known that the colon bacillus, under certain conditions, has virulent pathogenic properties, that it is a true pyogenic organism. The intestinal canal, particularly the lower intestine, swarms with different varieties of this bacillus. Under normal conditions of the intestinal mucous membrane the intestines do not absorb the bacillus or its toxins, but it is known that when a break in the intestinal mucous membrane occurs and also in severe and long continued constipation the bacteria pass through the intestinal walls in large numbers. Therefore, as an explanation of the source of infection in persons in previous good health, it may be fairly

stated that not infrequently in the life of an individual the blood is infected by quantities of colon bacilli which have been taken up because of some slight defect in the lining epithelium of the intestinal canal or during an attack of obstinate constipation. Whether these infections result in pathologic conditions elsewhere will depend largely upon the general good health of the individual and upon the condition of the various organs in the body.

The bladder, prostate gland and the uterus and its adnexæ are additional possible sources of bacterial infection of the kidney through the blood. The blood vessels of the kidney communicate with those of the bladder, aside from the general circulation, through two other channels, — the utero-ovarian and the vessels of the ureter itself. By injection experiments Sampson demonstrated that free arterial anastomosis exists between the branches of the renal artery supplying the capsule of the kidney about its lower pole, the kidney and the branches of the ovarian artery. The ovarian artery anastomoses freely with the uterine and with the vesical. There is both venous and arterial communication. Attention should also be called to the fact that the lymphatics, especially the glands, may act as intermediary channels between the primary focus in the bladder and the general circulation. The lymphatic communication through the bladder to the kidney is not direct, but indirect through the local glands of the bladder. It is, therefore, an anatomical possibility for an ulceration or septic focus in the bladder, uterus or its adnexæ to infect the kidney by way of the general circulation or through anastomotic channels directly. It is doubtful whether direct infection through the blood vessels of the ureter ever occurs. In the published cases where bacteriological cultures have been taken the colon bacillus has most often been the infecting organism; it was so in my own case and also in the cases of Cabot and Peck.

The infection so far as is known may come from the intestinal canal and from the reproductive organs and lower urinary tract in the female, especially in cases where long standing pelvic disease with intestinal adhesions is present. In the male the infection may come from the intestinal canal or from the prostate gland or the bladder; that is to say, these organs are the most probable sources of infection.

The experiments of Sampson, Brewer, Buxton and Torrey seem to prove conclusively that in normal conditions of health and in normal kidneys, bacteria circulating in the blood will pass through the kidney without causing harm. In those cases apparently in good health where infection occurs there is probably some cause in the kidney itself for localization of the bacteria. The kidney may have been injured, it may be prolapsed and rotated on its axis so that its circulation is interfered with. There may have been the obstruction and traumatism of renal calculi. It has been shown experimentally that obstruction of the ureter will most readily cause lodgment of the bacteria, and in all probability the most frequent cause of this form of renal abscess is some abnormality in the ureter due to stricture, the result of inflammation or calculi. In women deformities in the ureters caused by pregnancy and childbirth may be the provocative cause. It cannot be stated, however, that such infections will not take place in lowered general vitality and resistance with or without abnormalities of the kidney and its ureter.

The infecting bacteria are almost always arrested in the terminal vessels in the cortex of the kidney close to the fibrous capsule and the clogged blood vessels are seen filled with micro-organisms. Blood passes into the interstitial tissues and in this stage of infiltration, the earliest stage, the infected areas resemble hemorrhagic infarcts. As the infection goes on a true abscess is formed, separated from the sound tissue by a hemorrhagic margin.

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An unusual instance of the untimely inset of senility is reported from Minneapolis, Minn. A boy of eleven years who has just died in the City Hospital is stated to have had organs corresponding in their condition to those ordinarily seen at an advanced age. It is alleged that when the child was six years old his hair began to turn gray, his eyesight began to fail, and he walked with the deliberate care of a person well advanced in years. As a very young child he was exceptionally bright. — *Med. Record.*

TWO CASES OF CIRRHOSIS OF THE LIVER IN INFANCY IN CONNECTION WITH CONGENITAL OBSTRUCTION OF THE BILE DUCTS.

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AND
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CASE I. Martha R. was born Nov. 22, 1905. The parents and one other child were well. There had been no miscarriages and no history of syphilis. She was apparently normal at birth, although the abdomen was a little and the umbilical cord unusually large. Her weight was not known. She never passed any colored meconium, the movements from the first being whitish in color. The skin was not yellow at birth, but became so when she was ten or twelve days old. The parents were not sure as to the color of the urine in the beginning, but a few days later it was greenish, and so continued. She was breast-fed from the beginning, being given from the time she was two weeks old until the first of February a mixture of one part of milk and two parts of water in addition. She had seemed pretty well on the whole, but had vomited occasionally, and had had two loose, white movements daily. The urine stained the napkins green. The parents thought that she had had a little fever from time to time. She entered the Infants' Hospital, March 8, 1906, when three and one-half months old.

PHYSICAL EXAMINATION.

She was fairly developed and nourished. There was pretty marked jaundice of the skin, mucous membranes and conjunctivæ. The fontanelle was 4 cm. in diameter and level. She was perfectly intelligent. Her tongue was covered with thrush but the rest of the mouth was clean. There was no rosary or other evidences of rickets. The heart area and sounds were normal, the action slightly irregular, the rate 120. The lungs were normal. The upper border of the liver flatness was at the upper border of the fifth rib in the nipple line. The lower border of the liver ran from the right anterior superior spine to the left costal border in the nipple line. The notch was indistinctly palpable in the median line. The surface was smooth and the edge a little rounded especially in the left lobe. The gall bladder was not felt. The spleen was palpable, running out from beneath the costal border in the anterior axillary line, downward to the level of the navel, and backward and upward under the ribs in the post-axillary line. The greatest width was 6 cm., and it extended 4 cm. below the costal border. There was no fluid in the abdomen and no masses were felt. There was a moderate sized umbilical hernia. The cervical glands were slightly enlarged; the inguinal and axillary were not. There was a slight intertrigo about the buttocks and genitals. There were no mucous patches about the mouth or anus. There were no lesions of scratching and no scars of any old eruption. The bones were normal. Rectal examination was negative.

She ran a perfectly normal temperature during her stay in the hospital. The pulse ranged between 100 and 140, usually being about 120, while the respiration ranged between 25 and 50, usually being about 35. She was fed partly on the breast and partly on pasteurized buttermilk. She took the breast well, but the buttermilk only fairly. She did not vomit. She had one or two movements daily, white or grayish-white in color but smooth and homogeneous; occasionally they contained a very little mucus. Her weight at entrance was 4410 gm. and on March 19, 5270 gm. She was contented, comfortable and happy.

Blood. — Hemoglobin, 100%; red corpuscles, 4,816,000; white corpuscles, 18,900. On March 17, fibrin shreds appeared in the blood as soon as in the drop taken from a normal infant for comparison.

Urine. — Slightly green; 1009; acid; no albumin; considerable bile.

Feces. — Chemical examination showed no bile in the feces.

OPERATION.

March 19, under ether. The abdomen was opened by an incision about 3½ inches long through the right rectus muscle. There was a considerable quantity of serous fluid in the abdomen. The liver presented in the operation wound with the lower border a finger's breadth above the navel. The enlargement was uniform, the color a greenish-bronze, the consistency elastic. The surface was dimpled in places but was not roughened to the touch. The edge was rounded and the notch at the fissure unusually deep. The gall bladder was about the size of the distal phalanx of a child's finger and lay where the cystic duct would normally be found. The under surface of the liver showed no evidence of a gall bladder having developed in the normal position. The common bile duct was isolated and followed up through the hepatic duct to the under surface of the liver, but nowhere was there any evidence of a dilatation from obstruction to the flow of bile. Several small glands were found about the common duct in the gastro-hepatic omentum but they were not causing pressure. The spleen was markedly enlarged and elastic. The stomach and intestines were normal. The kidneys were normal to palpation. The abdomen was closed with catgut in the peritoneum and silkworm gut through the skin, muscle and fascia, and a dry dressing applied.

The baby stood the exploration very badly. It was pale and practically pulseless when put to bed, but the pulse improved after 2 oz. of salt solution had been given subpectorally. The color improved and food was taken two hours after the operation. The baby continued to take its food, both breast and bottle, but its condition did not become satisfactory. Stimulation improved the character of the pulse, but toward midnight it became restless, and died suddenly, just after its 2 A.M. feeding.

AUTOPSY.

Unfortunately, the only examination which could be made was through the wound of operation. The peritoneal cavity was found filled with bloody fluid and blood clots and the hemorrhage had evidently been sufficient to cause death. The same sero-sanguineous fluid was also found between the edges of the incision. The liver was markedly enlarged, running across the abdomen just above the level of the anterior superior spine of the ileum to a finger's breadth above the navel. The dimpled surface, the greenish color, the deep notch and the marked elasticity of the tissue were the same as noted at the operation.

The gall bladder, the size of a bean, lay at the base of the normal fissure. From this small gall bladder ran a minute cystic duct which connected with the common duct. The common bile duct was isolated and traced from the duodenum up to the liver. In no place was there any evidence of obstruction. Both the common and hepatic ducts were normal in size and appearance. Unfortunately, no effort was made to pass a probe through the duct, as it was assumed from its appearance that it was patent.

The spleen was enlarged to three or four times its normal size.

Further examination of the abdominal contents merely confirmed the normal findings at the operation.

PATHOLOGICAL REPORT.*

Liver. — The liver showed a moderate and irregular increase of connective tissue, most marked in the region of the portal vessels, but occurring also to some extent diffusely within the lobules. In some areas involving several lobules nearly every liver cell was surrounded by newly formed connective tissue, and the limits of the lobules could not be made out. In other areas the increase of connective tissue was slight or absent and the lobules were distinctly recognizable.

In the more normal areas the liver cells were arranged in orderly trabeculæ and the bile capillaries, often a little dilated, could be made out distinctly between them. Occasionally the bile capillaries were much distended and contained masses of greenish yellow inspissated bile. Sometimes masses of bile pigment lay in vacuoles in more or less enlarged liver cells.

In the areas where the connective tissue was increased in amount, the orderly arrangement of the liver trabeculæ was partly or completely lost, and many of the liver cells were apparently much increased in size and contained many nuclei, often a dozen or more. The protoplasm of these cells usually contained many small masses and granules of bile pigment. The nuclei in these giant gells varied in their location but were most often grouped in the center. These large multinucleated cells seemed to be due to fusion of liver cells; traces of cell membrane and of the bile capillaries could often be made out in them after certain stains. The many nuclei were apparently due, in part, at least, to direct division of the liver cell nuclei.

In the areas where the connective tissue was increased, branching double rows of cells resembling bile ducts were numerous. All gradations between them and normal rows of liver cells could be found.

The connective tissue showed a moderate infiltration with lymphocytes. (Fig. 1.)

Spleen. — The spleen was somewhat congested. The reticulum seemed to be slightly increased in amount. The lymph nodules contained numerous large pale cells scattered fairly evenly throughout. These cells were the endothelial cells of the reticulum, increased in number and showing marked phagocytic properties. They contained numerous more or less digested fragments of cells. A few contained yellow pigment and red blood corpuscles.

The blood sinuses of the pulp contained a few phagocytic cells. (Fig. 2.)

ANATOMICAL DIAGNOSIS.

Cirrhosis of the liver (biliary cirrhosis?). Retention and inspissation of bile pigment and dilatation of bile capillaries. Chronic splenitis (slight).

Case II. Mildred M. was born Jan. 2, 1906. The parents and one other child were well. There had been no other children or miscarriages and there was no history of syphilis. She was normal at birth and weighed nine pounds. The first movements from the bowels consisted of meconium. The history as to the movements was very unsatisfactory, but the mother was certain that the baby had green movements when it was eleven days old, and thought that they did not begin to be white until she was ten weeks old. (The findings at the operation and the autopsy make this history very improbable.) The mother said that the urine stained the napkins green from the first. Deep jaundice was noted at six weeks. It is certain, however, that the baby had been yellow for some time before. It was breast-fed for two months, after which it was given condensed milk. It did not vomit, but there was a slight tendency to constipation. It had lost weight steadily since birth. It entered the Infants' Hospital April 9, 1906, when fourteen weeks old.

PHYSICAL EXAMINATION.

It was small and poorly nourished. The skin was in good condition and there were no lesions of scratching. There was deep jaundice of the conjunctivæ, skin and mucous membranes. It was perfectly intelligent. The anterior fontanelle was 2 cm. in diameter and slightly depressed. There was a slight tendency of the bones of the skull to overlap. The head was long and narrow. The mouth was clean and the throat normal. The heart and lungs were normal. The abdomen was full but not tense. There were no evidences of fluid and no masses were felt. The upper border of the liver flatness was at the upper border of the fifth rib. The surface was smooth. The lower border was palpable 1½ cm. below the costal border in the right nipple line and half the distance from the ensiform cartilage to the navel in the median line. The surface was smooth, the edge sharp. The notch was felt distinctly in the right parasternal line. The gall bladder was not made out. The spleen was not palpable. There were no evidences of rickets. There was a slight general enlargement of the peripheral lymph nodes. The weight was 7½ pounds.

Blood. — White corpuscles 17,900. The coagulation time of the blood, estimated by the Brodie-Russell apparatus, on May 11, was six minutes. The baby was given 10 cc. of a gelatin solution at each feeding, and 2 gr. of calcium chloride four times a day up to the time of operation, three days later, when the coagulation time, estimated with the same apparatus, was one minute.

Urine. — High colored; cloudy; 1022; acid; no albumin or sugar: much bile.

Feces. — The movements from the bowels were about the color of white lead, formed and perfectly smooth. Chemical examination showed no bile.

The baby was put on pasteurized buttermilk, which it took readily. In the beginning it vomited after about half of the feedings, but later vomited much less. The movements continued to be white in color. They were sometimes loose and sometimes constipated, but always smooth and rarely contained either mucus or curds. The odor was at times foul, at others not. The weight increased slowly for about a week, but then gradually diminished, at the time of operation being somewhat less than at entrance. The temperature was normal or subnormal. The jaundice did not increase. The liver increased in size for about a week and then returned to its original condition. The spleen was never palpable. The general condition grew slowly worse.

OPERATION.

The operation was performed under ether May 14. The abdomen was opened by an incision at the outer border of the right rectus muscle, extending from the costal margin to the level of the navel. There was no fluid in the peritoneal cavity. The liver extended about 1 cm. below the costal border in the right nipple line and 4 cm. below the ensiform in the median line. It was dark in color and elastic and resistant to the touch. The surface appeared granular and was very slightly roughened. The fissures were normal. The gall bladder could not be found. No attempt was made to dissect out the common duct as there was no evidence of pressure or obstruction at any point. The spleen was not enlarged. The other abdominal organs

* We are indebted to Dr. F. B. Mallory of the Department of Pathology of the Harvard Medical School for the report of the microscopical findings in these cases.

were normal. The abdomen was closed with through-and-through sutures of silkworm gut and a dry dressing applied. There was no evidence of delayed coagulation during the operation.

There was but slight shock from the operation. Food was taken and retained during the following day and night. The temperature became subnormal the next day. Stimulation was without effect and the child died without, however, showing any symptoms of hemorrhage.

AUTOPSY.

Unfortunately, in this case also, the only examination which could be made was through the wound of operation. The size of the liver and the character of the surface were as noted at the operation. The other abdominal organs were normal. A very careful dissection of the gastro-hepatic omentum was made, but no common bile duct could be found. The duodenum was opened and the papilla identified, but a probe could not be made to pass into a duct. The gall bladder was represented by a pea-sized cyst at the base of the normal fissure. It had no demonstrable connection with a bile duct.

PATHOLOGICAL REPORT.

Liver. — The liver showed an older cirrhotic process than the first case. There was considerable increase of connective tissue, chiefly in the region of the portal vessels. It was old and dense, and showed almost no infiltration with lymphocytes. In places it had cut the liver tissue up into small islands. In the connective tissue were atrophied trabeculæ of liver cells.

In places the bile capillaries were much distended by homogeneous inspissated greenish masses of bile pigment. Some of the atrophied columns of liver cells in the areas of increased connective tissue also contained masses of inspissated bile. (Fig. 3.)

Spleen. — The spleen showed a slight general increase of connective tissue. In the blood sinuses were occasional phagocytic cells, some of which contained yellowish pigment.

The endothelial cells in the centers of the lymph nodules were a little more prominent than normally and were often phagocytic.

ANATOMICAL DIAGNOSES.

Cirrhosis of liver (biliary cirrhosis?). Retention and inspissation of bile pigment and dilatation of bile capillaries. Chronic splenitis (slight).

These cases are reported both because of the rarity of the condition, only about eighty cases being on record, and because of the still greater rarity of pathological and microscopical examinations. The findings in our cases agree pretty well with those in other cases, among the more recent of which are those of Griffith, Hobhouse, Cattaneo, Hédert, Parker and Wollstein. As is always the case, no evidences of syphilis were found. The changes in the liver are not such as to warrant any conclusions as to whether the principal or earliest cause was an irritant reaching the liver through the circulation or biliary retention from obstruction to the large ducts. They are certainly different, however, from those generally described as occurring after sudden obstruction to the flow of bile. The liver and spleen were enlarged in the first case, but not in the second, in which the pathological process was apparently of longer duration. Neither organ is enlarged in uncomplicated biliary obstruction in later life. The apparent patency of the common and hepatic ducts (probe unfortunately not passed) in Case I also goes to show, as is now generally believed, that the primary condition in these cases is certainly not always, and perhaps almost never, obstruction to or absence of the larger ducts.

There was a moderate leucocytosis, as in the other cases in which the blood has been examined. It was surprising how well the general condition was retained in the first case, which not only did not lose, but gained in weight during its stay in the hospital. Another interesting point was the absence of itching in both cases in spite of the marked jaundice.

The hemorrhage which followed the operation in Case I emphasizes the fact that the determination of the coagulation time of the blood by a crude method in which the blood is exposed to the air is not accurate. On account of the apparent normal coagulability of the blood as judged by the time of the appearane of the fibrin shreds no calcium chloride or gelatin was given, and without doubt hemorrhage was the immediate cause of death. In Case II the coagulation time of six minutes measured with the Brodie-Russell apparatus indicated a slight delay, and this delay was efficiently overcome by the use of calcium chloride and gelatin.

Although the diagnosis was almost certain in these cases, the absolutely hopeless prognosis, no patient having lived longer than eight months, seemed to us to justify exploration on the chances that the diagnosis might be wrong and that some remediable condition, such as obstruction of the larger ducts from pressure of glands or by inspissated bile, or a congenital stricture, might be found. The lesions found were, of course, of the sort expected and irremediable in character, and the exploration undoubtedly shortened the life of both babies. We feel, nevertheless, that in all similar cases exploration should be performed on the chance of occasionally finding some remediable condition.

THE PROFESSIONAL TRAINER'S THEORY OF TRAINING.*

BY EDWARD H. NICHOLS, M.D., BOSTON.

DURING the past summer it became my duty to examine and talk with a number of professional trainers, with a view to engaging a man to train the members of the Harvard football and baseball teams. A large number of trainers came up for consideration, and of that number I personally interviewed ten. A series of general questions was asked, in order to determine, as far as possible, the candidates' fitness for the task. The answers to the questions were interesting as displaying the point of view and the lack of accurate basis for training, and it is for that reason that I ven-

* Read at the semi-annual meeting of Suffolk District Medical Society, Oct. 27, 1906.

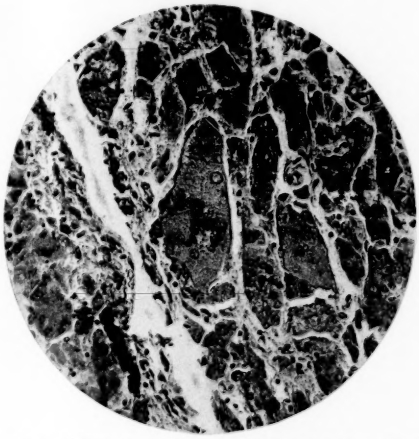


FIG. 1. To show the character of the large multinuclear cells in the liver of Case I.

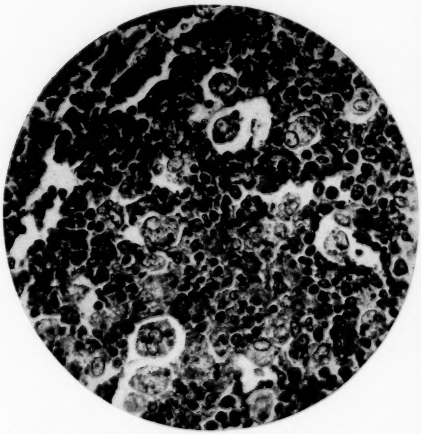


FIG. 2. To show the endothelial cells seen in the spleen of Case I.



FIG. 3. To show the increase of the connective tissue in the region of the portal vessels seen in the liver of Case II.

ture to report very briefly, and in a general way, the character of the answers.

Since the first duty of a trainer is to present a man for a competitive contest in the condition of highest possible physical efficiency, the first question asked, naturally, was by what means the trainer determined whether a man was or was not in such a state of efficiency, — that is, how the trainer determined whether a man was "fit." To that question the answers were practically unanimous, the answer being that the condition was determined by the "appearance" of the man. Some of the trainers were unable to specify any further what that "appearance" meant. Others said, that if a man's eye was bright, if his color was good, and his lips were red, he was in good condition. Others added, that if the man "felt well" much stress was to be laid upon that fact. On the other hand, a man was unfit or "over-trained" if his eye was dull, if he was sleepless and if his color was poor. One man specified that poor color meant a "blue look." The value of the evidence of a man's feeling well seems to me, from a considerable experience with young men in training, to be very slight, as athletes are very loath to acknowledge that they do not feel up to their very best, since complaints of unfitness may be taken as evidence of a lack of courage.

When asked what was the best single indication of a man's condition, some of the trainers replied that the best index of all was a man's weight. They all agreed that a continuous loss of weight was practically always a definite sign that a man had "gone stale." They also all agreed that a considerable loss of weight after daily exercise should be replaced by the next day, and that if the loss was not immediately replaced at the end of twenty-four hours, and if the loss continued, that it was very strong evidence of over-training. They also all agreed, however, that most men beginning training should, for a time at least, lose weight and then either hold their own or slowly add weight; but no one of them was able to give any accurate information as to the percentage of the total weight that should be lost in training. About a third of the men stated that the reduction in weight should cease at the end of about three weeks, and after that there should be no marked depreciation in weight, or a slight increase should begin.

The amount of daily work required to bring men to their best physical condition was another question. The answers to this question were very varied: One man, for instance, thought that a daily scrimmage of forty-five minutes on the football field was not an excessive amount of work; other men thought that fifteen minutes' scrimmage daily was sufficient. It must be borne in mind that besides the scrimmage work there is also a very considerable amount of running through signals and other routine work which must be done daily, which of course very greatly increases the amount of time during which men are exercising. From my own experience, I believe that forty-five minutes' scrimmage in addition to the other routine football work is very greatly in excess of the amount of work that the ordinary individual can stand.

The question also arose as to how long men could be kept at the very tiptop of physical condition. The important athletic games, of course, ordinarily come at the end of the season. If only one important game is played, the question of condition is relatively simple. If, however, for instance, two important games are to be played, the question arises whether it is possible to have men at their very tiptop for both games; and it is also important to know whether the two important games should be played within a few days of eachother, or whether it is better to have those important games separated by a longer interval of time. The answers to the question as to how long men could be kept at tiptop condition were very variable, some trainers claiming that men could be brought to their maximum and kept at that maximum for a period of about three weeks. In that case the best way to arrange the important games, would be to have them separated by a period of two weeks. Other men claimed that physical condition of men in training was either constantly improving or constantly deteriorating; one man claimed, for instance, that it is not possible to keep men at their very top form for a period longer than three days. If that were the case, it would be necessary to have the men a little bit short of work for their first important game and to bring them to their maximum for the second game, to be not more than a week later. None of the men were able to give any really clear or distinct idea as to how they would judge when a man was at his absolute maximum.

The question as to what to do with men who had reached their maximum and had begun to go off again, that is, with the men who were over-trained, also was brought up. The important question was, how long it took to get men who had been over-trained into good condition again. The answers to that question were very variable, some trainers claiming that men who had "gone stale" could be brought into condition again by a rest of two or three days. Others said that men who had been over-trained could be brought into condition only by a rest extending over several weeks; and one man said that an athlete who had really "gone fine" could not be brought into the pink of condition again during a competitive season.

The question as to how athletes in training should be fed brought out a general indefiniteness. It was obvious that none of the trainers had the faintest idea of any scientific method of feeding; the general answer as to the question of feeding being that the men should be fed "upon digestible food which agreed with them." Some men apparently proposed to carry out a very strict regimen; others believed that it was unnecessary to interfere with the usual feeding of the men to any great extent. They all agreed that pastry and fried food were undesirable. Several claimed that milk to any great extent was an undesirable

food because it "affected the wind"; although they were unable to give any reason for their statement. They nearly all agreed in excluding fats as far as possible. In this connection it may be worth while to mention an incident seen at one of the Harvard training tables, and observed in a less degree often. I have seen a man come up from the football field, and before soup was served eat a half a pound of butter on less than a whole slice of bread, and this remarkable desire for fats, which are very largely excluded from regular training diet, is common and notable.

In connection with the food, the question was asked as to the value of alcohol in any form to men in training. The trainers were almost, without exception, themselves abstainers, and very few of them smoked. Their ideas as to the value of alcohol were very variable. They practically all agreed that spirits in any form were undesirable, and they were also almost unanimous that some of the malt liquors were desirable and valuable, especially towards the latter end of training. Bass's ale was considered the best of all the alcoholic stimulants. The reason for that none of them was able to give, although my own impression has been, that it is due to the fact that men in training, daily fatigued by the great amount of exercise they take, are much more easily affected by alcohol than under ordinary conditions, and that Bass's ale quickly going to their heads gives them a feeling of comfort, and in that way, perhaps, may induce sleep and lessen the feeling of fatigue. Why the same thing should not be just as well brought about by either wine or spirits is not clear.

To sum up, then, there was no practical agreement upon the amount of work, the length of time during which men could be kept in top condition, or the character of the food to be given to men in training. There was practically complete agreement that weight was the one accurate index of condition. None of the men had had any medical education, and their judgment was based entirely upon experience and "rule of thumb."

The whole thing, then, comes down to a very indefinite general impression, plus the indication shown accurately by weighing scales, and all this seems to show that the science of training is a very indefinite and crude one, and that the most valuable trainer is, in all probability, the man who knows human nature, especially the nature of young men, best.

MEDICAL ASPECTS OF ATHLETICS IN PREPARATORY SCHOOLS.*

BY JOHN BAPST BLAKE, M.D., BOSTON.

DURING the past five or six years the writer has had the opportunity of examining with considerable care a large number of boys who have gone into athletics in the preparatory schools, and of inspecting and to some extent supervising an additional number who were not necessarily schoolboys, but were amateurs between the ages of fourteen and twenty years.

The opinions and conclusions here expressed are based therefore on observations covering several years, made upon a large number of boys, who were taking part in many different sports; they are free from those fallacies and illogical inferences which have been known to arise from observing a single sport in a single year.

The examinations include: Candidates for the interscholastic crews; candidates for interscholastic track teams; individual members of interscholastic football, baseball and basketball teams; long distance runners; contestants in sparring at the Boston Athletic Association.

It may be stated at the outset, that the writer is a firm believer in athletics and sports both for the boy, the youth of both sexes and the adult. It would be most unfortunate if interscholastic games and similar contests were prohibited; nevertheless, no fair-minded observer can fail to recognize serious defects in and objections to many of the methods which now obtain. If most of these objectionable features are not eliminated, the advisability of continuing these sports must be considered. It is because I believe that they can and will be eliminated that I desire to bring them forward for consideration.

As a premise which all will accept, it is obvious that anything which continually damages a boy's health, morals or capacity for acquiring knowledge, must be eradicated from any educational system. It is primarily with the boy's health that we are concerned to-night.

There are some undesirable elements common to all competitive athletics; common at least in this country at the present time; and there are others peculiar to certain sports which may be worth considering in detail.

Among objections of a general nature may be placed first the final contest or competition itself. That the physical and mental exertion involved in any serious contest is a good thing in itself, few would claim, though the writer believes that the physical strain is often in these conditions the least serious element. To prepare for this physical strain, and to minimize any of its undesirable results, are the aims of "training" so-called, while practice and instruction aim at perfection in the execution of the sport itself. Is the strain in the interscholastic contests disproportionate to the strength of the boys, if properly trained? And are the methods of training for these contests the best that can be devised?

I believe the strains involved are not too great for properly selected and properly trained boys, but there are too frequent cases of poor judgment, both in the selection of individuals and in the character of their preparation.

The first and one of the most serious objections in selection consists in permitting and at times compelling a boy of exceptional skill to compete in two, three or even four sports. This requires more or less continuous training throughout the entire school year, sometimes beginning before

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the school opens and occasionally continuing through the vacation periods. For this continuous, unrelenting physical exertion, the boy's growing organism is not so well adapted as that of a more mature age; and an accompaniment of the physical is, of course, the mental strain. The general rule, to which individual exceptions could be made, should be that no boy should represent his school in more than two sports, and that these should be separated by considerable periods of time.

Another *general* objection is the enormous and still growing publicity of school contests. They now occupy a position in the eyes of the public almost greater than that of college contests of fifteen or twenty years ago; and of course out of all proportion to their actual importance. This unfortunate publicity is not diminished by the daily press, and the long stories, pictures and photographs of games and players increase the nervous strain on many of the boys, at times to a serious degree.

Bad as this condition is in the college world, it is still worse for the schoolboy, as he is in the time of life when such false impressions easily take root and often become most difficult to eradicate.

A third general objection is the fact that competition has an inevitable tendency to diminish the number of the candidates to such as have a good chance for final positions on the larger teams. This again is more serious in schools than in colleges, because obviously the very boys who most need the early formation of the habits of out-of-door exercise, the benefit of discipline and the development of a good physique are not, as a rule, good material for the best teams, as will be pointed out. This objection may be easily diminished almost to zero.

Finally, the major games have grown apparently so important that coaches, and occasionally the masters themselves, become too anxious to win. It is obvious that not a few preparatory schools have in the past used as their chief asset the attraction of a powerful eleven or track team. The individual, purchasable interscholastic star has even appeared as the direct result of such conditions.

As another result the individual boy may be so persistently over-worked as to make serious inroads upon his stamina, sacrificing the individual for the sake of team victory which in turn redounds to the credit of the coach. The frequency with which coaches are changed in school teams allows a careless man to take measures for a single victory which might result in unnecessary personal injuries to his own or to opposing players, or to leave to his successor undeveloped secondary athletes unable to stand the stress of important games.

I hesitate to speak of the rowdyism among the boy spectators which has lately characterized and followed some school contests. It does not obviously enter into the medical aspects of the subject. A continuance of such disturbances would warrant the abolition of all interscholastic games in which it occurred. It is due, however, as much to indifference of parents and masters as to the boys themselves, and it could be easily and entirely eradicated.

Having thus briefly considered general objections, the characteristics of particular sports may be examined.

Of these, rowing is unquestionably the best: it possesses the fewest unpleasant, and the greatest number of desirable, characteristics. It is in the first place firmly controlled by a committee of a large association, whose members are mature men of judgment, whose interest in rowing is keen, but who are awake to the importance of supervision and regulation. The coaches are carefully selected, the exercise is not too severe, the actual rowing takes place but three times a week and extends over a long period, and the medical examination is a pre-requisite to competition. Its only disadvantage is that the actual race is always a hard physical effort; at times conditions of distinct temporary collapse have occurred at the finish line, but I have never known of any lasting effect.

Baseball is second as a beneficial sport. It lacks the grueling contests of rowing, but in its practice, its coaching and the circumstances of its games, it is distinctly inferior. It is, however, an admirable exercise for the light, skillful boy, and, unlike many other sports, does not put too great a premium on simple muscular strength.

Football is third, and distinctly better than track games; this, of course, is in direct opposition to the judgment of many, and particularly to those who share the exaggerated and prejudiced views against the game, which are at present so widespread.

Football suffers in common with all the rougher sports, those which President Roosevelt so well described as the " personal contact games," — sparring, wrestling, lacrosse, hockey, etc., from the bugbear of minor and at times major injuries. The real objections to football — and the writer believes that they *are* real though not insuperable — lie not in physical but in moral conditions. As an all-round game, it is still the best we know, and its physical disadvantages could be easily reduced three fourths by the simple expedient — particularly desirable in preparatory schools — of having teams with a weight restriction as has, from time immemorial, been the custom in the allied sports of wrestling and sparring: feather weight, light weight, middle weight and heavy weight teams would do more to diminish the casualties and increase the attractiveness of football than a long list of other complicated and cumbersome reforms.

Football comes at a season of the year when the boys are best prepared for hard exercise, and the weather best adapted for it. Its season is short. The writer believes that the training should be less severe; there should be little or no running as an adjunct to the practice, and the practice itself, now of daily occurrance, should be limited to three times a week. The supervision both of contestants and spectators should be infinitely

more thorough, more persistent and more effective than it now is.

Track games are fourth in order of desirability. The reasons are that many of the contests are extremely severe physical tests, fully as exhausting as the rowing races. Much of the practice and training is indoor work, and occurs in the winter; at least one of the meetings is an indoor contest; and many who have played football, and are later to row, are permitted to participate; the writer considers the indoor mile run and the indoor relay race as the two most severe physical strains to which schoolboys are to-day submitted, with the possible exception of the Marathon run.

The indoor meeting might be omitted without serious consequences; seldom if ever should a boy competing in football and rowing be permitted to go on the track team; practically never should a boy be allowed to run either the mile or the relay indoors, and to enter any other event in the same meeting.

Basketball is the least desirable of the major school sports. The physical and moral risks are alike serious. The contest takes place indoors and on hard floors. The game at present possesses little claim to peculiar advantages not possessed in equal or greater degree by other and in other respects more desirable sports.

The correction and eradication of these faults and dangers, which at first glance may appear formidable, depends, the writer is convinced, upon the recognition of the great importance and the proper position of athletics in the preparatory school curriculum. Exercise, in the form of sports, games, etc., that is, organized exercise of the non-gymnastic type, has become, and will remain, a permanent element in American schools (as happened a couple of generations earlier in most English schools). The recognition of this fact by parents, masters and instructors, including athletic instructors, means that far more careful thought and personal supervision shall be expended upon this side of the school work; far more attention shall be paid to the selection of coaches, whose general fitness shall be examined in a manner now infrequent, and who should preferably be a graduate of the school, and far more personal interest manifested by the parents of the contesting boys; the parents have in the past been particularly indifferent.

In those sports and games in which a paid instructor, commonly called a coach, seems necessary, the selection of this instructor is of the utmost importance and should be determined only after careful consideration by the head master, assisted by his teachers, and not too greatly influenced by the wishes of the boys. The work and methods of the coach should be constantly inspected by instructors of the school, and it should be demonstrated that he earns his often too large salary by rendering really acceptable service in his special branch of work, and by setting a good example to his boys, both on and off the practice field.

The coach should be assisted by a doctor who has had some experience in the examination of young athletes, and who does not hesitate to use his common sense in tactfully preventing boys from competing, as much from general causes as from specific conditions. Altogether too frequently in the past has a doctor, often the family doctor, waited for an actual murmur in the heart before taking a boy out of a major sport; much more frequently should boys have been requested to give up competition, not for a single definite cause, but from a general estimate of physique, age, previous illness, nervousness or disproportion of height to weight, etc. It is seldom that a doctor must prohibit competition on account of true organic disease of heart or any other organ. If such disease existed, the boy would not be able to do his part; care should be taken that a report of "heart disease" does not spread in case a boy is stopped for other reason. A rigorous enforcement should be made of the rule against continuous training, and steady pressure brought to bear against representing the school in more than two events. The training itself, besides of course proscribing alcohol and tobacco, should be varied and as free from irksomeness as possible. Instead of running, as a daily supplement of all practice, walking should be recommended, and cross country walking on Sundays and holidays throughout the year should be encouraged to the utmost. The social side of such walks should be maintained by a lunch or dinner at the finish, with a talk or some singing afterwards; or the walks may be combined with geological excursions and practical study of trees and plants and animals. For this purpose a kodak is invaluable. In short, every effort should be made towards developing physique, strength, staying power and resistance by methods which are pleasant and as little machine-like as possible. On all these things doctor and coach should confer.

Food. — Almost without exception, boy athletes come under Professor Chittenden's characterizations when he said, as a result of a long series of careful experiments, "We eat too much, we eat too fast and we eat too much meat." Meat twice a day with plenty of fruit and vegetables, and a generous allowance of fats should be the school boy's regimen. To eat slowly and chew thoroughly are still more important.

The boy needs nine hours' sleep as a rule, and ten hours' occasionally; it is not wasted time during the growing years.

The regulation and management of sports in each school should be not in the hands of the boys, but vested in a committee composed of the head master, an instructor, the coach, if possible the doctor, and the captain and manager of each particular sport under consideration. In other words the boys should have only a minority voice in the arrangement of games, duration of practice, etc. Unless the head master can and will give some time to these things, school athletics will continue to be full of unnecessary dangers; unless the parents take pains to understand sympathetically their boys' participation in these games, physical conditions, other-

wise difficult to detect, will be overlooked to the boys' detriment. Unless coach and doctor use common sense as well as technical knowledge, athletics in boys will result in some harm.

Hockey, tennis, golf, squash and similar games are excellent and should be consistently encouraged; they need but little regulation. Each new game or sport developed, means that a larger number of boys who take exercise. In the establishment of these subsidiary sports, in the far more strict supervision of the older sports, in the introduction of walking in its various forms, and in the personal interest of the parent, the teacher, the doctor and the coach in the schoolboy's play, as in his work, lies, the restoration of school athletics to its proper position, — a position of great importance, a source of much pleasure and more health, a potential moral influence and an essential educational factor.

THE MEDICAL KNOWLEDGE OF SHAKESPEARE.

BY ALBERT C. GETCHELL, M.D., WORCESTER, MASS.

(Concluded from No. 3, p. 70.)

The practice of inspecting urine for the determination of disease is of a very remote date. It doubtless arose from the interdictions of the clergy, which forbade priests and monks from visiting their patients. Richardus Angelicus, one of the earliest of English physicians, who lived about the year 1230, left two works on the subject, "A Tractate of Urines" and "On the Rules of Urines." That the practice was widely in vogue and continued during Shakespeare's time is shown by the fact that Dr. Harris, the founder of the College of Physicians, strongly inveighed against it: "There have been as bad a race of defenders, both men and women, who will, or have, undertaken to tell all things from the urine."[7] Shakespeare, in several places, alludes to this practice. Speed thus discourses:

"But you are so without these follies, that these follies are within you, and shine through you like the water in an urinal, that not an eye that sees you, but is a physician to commenton your malady."
(The Two Gentlemen of Verona, II, 1, 35.)

To heap ridicule upon Dr. Caius, in "The Merry Wives of Windsor," the host thus accosts him:

"Thou art a Castilian, King Urinal."
(The Merry Wives of Windsor, II, 3, 33.)

And soon after:

"*Host.* A word, Monsieur Mock-water."
(*Ibid.*, line 56.)

Again:

"*Evans.* I will knog his urinals about his knave's costards." (*Ibid.*, III, 1, 15.)

These epithets are applied in coarse jest, and probably indicate that Shakespeare intended to throw ridicule on the practice of urine casting, as it was called, seeing what a shallow pretense it was. However, he makes more or less frequent reference to it, thus:

"*Falstaff.* Sirrah, you giant, what says the doctor to my water?
Page. He said, sir, the water itself was a good healthy water; but, for the party that owed it, he might have more diseases than he knew for."
(King Henry IV, Part II, I, 2, 1.)

And

"*Macbeth.* If thou could'st, doctor, cast
The water of my land, find her disease,
And purge it to a sound and pristine health,
I would applaud thee to the very echo."
(Macbeth, V, 3, 50.)

When Malvolio is definitely pronounced to be mad, Fabian says:

"Carry this water to the wise woman."
(Twelfth Night, III, 4, 104.)

The explanation of this passage may be found in Heywood's play, "The Wise Woman of Hogsdon": "You have heard of mother Nottingham, who for her time was prettily well skilled in casting waters; and after her mother Bombye." The several occupations of these imposters are thus described in this play by Heywood: "Let me see how many trades I have to live by: First, I am a wise woman, and a fortune teller, and under that I deale in physicke and forespeaking, in palmistry and recovery of things lost. Next I undertake to cure madd folks," etc.[8]

That our bodies consist of four elements, — fire, air, earth and water, — and that disease was due to a derangement of these elements was an old and well accepted dictum of pathology, dating from Plato. It was substantially adopted by Galen, and embraced on his authority by the Middle Age schoolmen.

Sir Tobey Belch gives expression to this idea when he says:

"Does not our life consist of the four elements?
Sir Andrew Ague-Cheek. Faith, so they say; but I think it rather consists of eating and drinking."
(Twelfth Night, II, 3, 9.)

So in "Julius Cæsar" (V, 5, 73), Antony, speaking of Brutus, says:

"His life was gentle; and the elements
So mix'd in him that nature might stand up,
And say to all the world, 'This was a man.'"

Falstaff, to whom we are indebted for many wise sayings, when he exclaims against fighting on a hot day, wishes he may

"Never spit white again"
(King Henry IV, Part II, I, 2, 210.)

should it so happen. The color of the spittle was with the medical men of olden times an important point of diagnosis, especially of temperaments.

The medical doctrine of crisis was universally prevalent, and it is to this undoubtedly that the following passage refers:

"*Pandulph.* Before the curing of a strong disease,
Even in the instant of repair and health,
The fit is strongest: evils that take leave,
On their departure most of all show evil."
(King John, III, 4, 112.)

The terms "choler" and "imposthumes" were of frequent use in the old pathology. Choler referred to the bile, and irascibility of which the

[7] Bucknill, p. 62.

[8] Furness: The Variorum Shakespeare, "Twelfth Night," p. 224.

bile was supposed to be the seat and cause. In this passage it was used in both senses:

"*Guildenstern.* The king, sir, —
Hamlet. Ay, sir, what of him?
Guildenstern. Is, in his retirement, marvellous distempered.
Hamlet. With drink, sir?
Guildenstern. No, my lord, rather with choler.
Hamlet. Your wisdom should show itself more richer, to signify this to his doctor; for, for me to put him to his purgation, would, perhaps, plunge him into far more choler." (Hamlet, III, 2, 299.)

"Imposthumes," or "aposthumes," — for the word is written by the older surgical writers both ways indifferently, — had a wide meaning; indeed, according to Ambroise Paré's classification of them into five species, the name appears to have included everything that could have been called a swelling "against nature," for instance, an abscess of the liver, which might grow and burst into the lung, without giving any external evidence of what it was, as in this passage:

"*Hamlet.* This is the imposthume of much wealth and peace,
That inward breaks, and shows no cause without
Why the man dies." (Hamlet, IV, 4, 27.)

Chlorosis, or green sickness, an affection of the blood to which young women are peculiarly liable, is spoken of several times, thus:

"*Viola.* She never told her love, —
But let concealment, like a worm i' the bud,
Feed on her damask cheek; she pin'd in thought;
And, with a green and yellow melancholy,
She sat like Patience on a monument,
Smiling at grief." (Twelfth Night, II, 4, 110.)

That Shakespeare knew it to be a disease peculiar to women is shown by these passages, where he speaks of it as a kind of male green-sickness:

"*Falstaff.* Good faith, this same young sober-blooded boy doth not love me, nor a man cannot make him laugh; but that's no marvel, he drinks no wine. There's never any of these demure boys come to any proof; for thin drink doth so over-cool their blood, and making many fish-meals, that they fall into a kind of male green-sickness; and then, when they marry, they get wenches." (King Henry IV, Part II, IV, 3, 90.)

So also:

"Cæsar is sad; and Lepidus,
Since Pompey's feast, as Menas says, is troubled
With the green sickness." (Antony and Cleopatra, III, 2, 4.)

Blood letting was an important and often practiced therapeutic measure, and there are many allusions to it, thus:

"*Rosaline.* Is the fool sick?
Biron. Sick at the heart.
Rosaline. Alack! let it blood.
Biron. Would that do it good?
Rosaline. My physic says, ay.
Biron. Will you prick't with your eye?
Rosaline. *No point*, with my knife." (Love's Labour's Lost, II, 1, 182.)

Again, in the same play, he expresses, not only the humoral pathology of fever, and prescribes its antiphlogistic treatment, but alludes to the custom of the phlebotomists of the time:

"*Dumain.* I would forget her; but a fever she
Reigns in my blood, and will remember'd be.
Biron. A fever in your blood? Why, then incision
Would let her out in saucers: sweet misprision!" (Love's Labour's Lost, IV, 3, 93.)

The following refers also to the old notion of a particular time of the year being better than other times for blood letting. The forty-seventh aphorism of Hippocrates, section 6, is that, "Persons who are benefited by venesection or purging should be bled or purged in the spring."

"*King Richard.* Wrath-kindled gentlemen, be rul'd by me,
Let's purge this choler without letting blood.
This we prescribe, though no physician;
Deep malice makes too deep incision;
Forget, forgive; conclude, and be agreed.
Our doctors say this is the month to bleed." (King Richard II, I, 1, 152.)

The word *consumption* is used at least twice in its modern sense:

"*Beatrice.* I would not deny you: — but, by this good day, I yield upon great persuasion; and, partly, to save your life, for I was told you were in consumption." (Much Ado about Nothing, V, 4, 96.)

She evidently thinks the disease curable; not so Falstaff:

"*Falstaff.* I can get no remedy against this consumption of the purse: borrowing only lingers and lingers it out, but the disease is incurable." (King Henry IV, Part II, I, 2, 235.)

"Hectic" we find used in its modern sense of a persistent cause of irritation and fever. After the king has sent off Hamlet to England, where he expects he will be murdered, he says:

"*King.* Do it, England;
For like the hectic in my blood he rages,
And thou must cure me." (Hamlet, IV, 3, 67.)

The king's evil was probably a form of tuberculosis. Its cure is thus described:

"*Malcolm.* Comes the king forth, I pray you?
Doctor. Ay, sir; there are a crew of wretched souls,
That stay his cure: their malady convinces
The great assay of art; but at his touch,
Such sanctity hath heaven given his hands,
They presently amend.
Malcolm. I thank you, doctor.
Macduff. What's the disease he means?
Malcolm. 'Tis call'd the evil;
A most miraculous work in this good king,
Which often, since my here-remain in England,
I have seen him do. How he solicits Heaven,
Himself best knows; but strangely-visited people,
All swoln and ulcerous, pitiful to the eye,
The mere despair of surgery, he cures;
Hanging a golden stamp about their necks,
Put on with holy prayers: and 'tis spoken,
To the succeeding royalty he leaves
The healing benediction." (Macbeth, IV, 3, 140.)

We find allusions to some curious therapeutic agencies. Bottom the weaver, when Cobweb was presented to him, said:

"*Bottom.* I shall desire more of your acquaintance, good master Cobweb. If I cut my finger, I shall make bold with you." (Midsummer Night's Dream, III, 1, 184.)

Plantain water was a remedy then in common use.

"*Moth.* A wonder, master! here's a Costard broken in a shin.
Armado. Some enigma, some riddle: come, — thy l'envoy; — begin.

Costard. No enigma, no riddle, no l'envoy! no salve in them all, sir. O, sir, plantain, a plain plantain! no l'envoy, no l'envoy: no salve, sir, but a plaintain."
(Love's Labour's Lost, III, 1, 72.)

So also:

"*Romeo.* Your plantain-leaf is excellent for that.
Benvolio. For what, I pray thee?
Romeo. For your broken shin."
(Romeo and Juliet, I, 2, 51.)

After Gloster's eyes have been cruelly ground out, in pity the servant who was told to thrust him out of his own house, says:

"*Third Servant.* Go, thou; I'll fetch some flax, and whites of eggs,
To apply to his bleeding face. Now, heaven help him!"
(King Lear, III, 7, 106.)

Apropos of eyes, the term, "pin and web" seems to have been an expression for the condition we understand as cataract. Florio, in his new "World of Words," thus interprets the Italian *cataratta* — "a dimness of sight occasioned by humours hardened in the eyes, called a cataract or a pin and web." We find this term in "Winter's Tale" (I, 2 290):

"*Leontes.* All eyes
Blind with the pin and web, but theirs, theirs only
That would unseen be wicked?"

And in "King Lear" (III, 4, 116):

"*Edgar.* This is the foul fiend Flibbertigibbet: . . . he gives the web and the pin, squints the eye, and makes the hare-lip."

Although we are not to suppose that Shakespeare had in mind the remedial function of sleep, yet in these days, when rest of the body and mind is recognized as such an important factor in the treatment of disease, Macbeth's apostrophe to sleep is interesting:

"*Macbeth.* Sleep, that knits up the ravell'd sleave of care,
The death of each day's life, sore labour's bath,
Balm of hurt minds, great nature's second course,
Chief nourisher in life's feast." (Macbeth, II, 2, 35.)

SURGERY.

There are comparatively few passages in Shakespeare that have a surgical significance. Surgery was very little cultivated and applied mainly to the relief of injuries accidental or otherwise. The two following quotations evidently borrow their figure from the formation of an abscess:

"The time will come that foul sin, gathering head,
Shall break into corruption."
(King Henry IV, Part II, III, 1, 76.)

And:

"*Salisbury.* His passion is so ripe, it needs must break.
Pembroke. And when it breaks, I fear, will issue thence
The foul corruption of a sweet child's death."
(King John, IV, 2, 79.)

And this to the necessity of removing a diseased member to save the rest of the body:

"This fester'd joint cut off, the rest rests sound;
This let alone, will all the rest confound."
(King Richard II, V, 3, 85.)

And this to the difference between a clean cut and a ragged one:

"Fell sorrow's tooth doth never rankle more,
Than when it bites, but lanceth not the sore."
(*Ibid.*, I, 3, 302.)

And another:

"*Archbishop.* 'Tis very true;
And therefore be assur'd, my good lord marshal,
If we do now make our atonement well,
Our peace will, like a broken limb united,
Grown stronger for the breaking."
(King Henry IV, Part II, IV, 1, 220.)

The tent, frequently mentioned, was a substance made of lint or flax which in the rough surgery of the time was thrust into wounds. There are several allusions to it:

"*Marcius.* I have some wounds upon me, and they smart
To hear themselves remember'd.
Cominius. Should they not,
Well might they fester 'gainst ingratitude,
And tent themselves with death." (Coriolanus, I, 9, 28.)

"*Hector.* Modest doubt is call'd
The beacon of the wise, the tent that searches
To the bottom of the worst."
(Troilus and Cressida, II, 2, 15.)

"*Patroclus.* Who keeps the tent now?
Thersites. The surgeon's box, or the patient's wound."
(*Ibid.*, V, 1, 12.)

But sometimes it meant to probe as well. When Hamlet has arranged the play to prove the king's guilt, he says:

"I'll tent him to the quick: if he but blench. I know my course." (Hamlet, II, 2, 607.)

And:

"*Imogen.* Talk thy tongue weary; speak:
I have heard I am a strumpet; and mine ear,
Therein false struck, can take no greater wound,
Nor tent, to bottom that. But speak."
(Cymbeline, III, 4, 115.)

Among certain peoples tooth-ache has been ascribed to a worm. With the Chinese even to the present time quacks pretend to cure it by extracting a worm. In a book of John of Gatisden, an Italian medical authority of the fourteenth century, the decay of the teeth is ascribed to a humor or aworm. So that Shakespeare had authority for this passage:

"*Benedick.* I have the tooth-ache.
Don Pedro. Draw it.
Benedick. Hang it!
Claudio. You must hang it first, and draw it afterwards.
Don Pedro. What! sigh for the tooth-ache?
Leonato. Where is but a humour, or a worm?"
(Much Ado about Nothing, III, 2, 20.)

I will close this part of my paper with a sage remark of Sir John Falstaff, on reducing his weight, and also a description of oncoming age:

"If I do grow great, I'll grow less; for I'll purge, and leave sack, and live cleanly, as a noble man should do."
(King Henry IV, Part I, V, 4, 163.)

"*Chief Justice.* Do you set down your name in the scroll of youth, that are written down old with all the characters of age? Have you not a moist eye, a dry hand, a yellow cheek, a white beard, a decreasing leg, an increasing belly? Is not your voice broken, your wind

short, your chin double, your wit single, and every part about you blasted with antiquity, and will you yet call yourself young? Fie, fie, fie, Sir John!"
(King Henry IV, Part II, I, 2, 177.)

SYPHILIS.

Shakespeare appears to have had a very considerable knowledge of syphilis, which in his time was attracting a large share of public and professional attention, both because of its novelty and its ravages:

"*Duke Senior.* Most mischievous foul sin, in chiding sin:
For thou thyself hast been a libertine,
As sensual as the brutish sting itself;
And all the embossed sores, and headed evils,
That thou with license of free foot hast caught,
Wouldst thou disgorge into the general world. . . ."
(As You Like It, II, 7, 64.)

And:

"*Lucio.* Behold, behold, where Madam Mitigation comes!
First Gent. I have purchased as many diseases under her roof, as come to —
Second Gent. To what, I pray?
Lucio. Judge.
Second Gent. To three thousand dollars a year.
First Gent. Ay, and more.
Lucio. A French crown more."
(Measure for Measure, I, 2, 43.)

The French crown was the common venereal rupia, a particular form of which was called "*le chapelet*," since the tubercles were to be found about the forehead, temples and behind the ears, forming the figure of a crown. This French crown is spoken of again also with the loss of hair:

"*Quince.* Some of your French crowns have no hair at all, and then you play bare-faced."
(Midsummer Night's Dream, I, 2, 92.)

Also:

"*Clown.* As fit as ten groats is for the hand of an attorney, as your French crown for your taffeta punk."
(All's Well that Ends Well, II, 2, 21.)

And:

"*Pistol.* News have I, that my Nell is dead i' the spittal
Of malady of France."
(King Henry V, V, 1, 83.)

It also had another name:

"*Thersites.* After this, the vengeance on the whole camp! or rather, the Neapolitan bone-ache; for that, methinks, is the curse dependant on those that war for a placket."
(Troilus and Cressida, II, 3, 17.)

And still we find another name:

"Now the rotten diseases of the south."
(*Ibid*, V, 1, 19.)

It is evidently this disease that the grave digger refers to:

"*Hamlet.* How long will a man lie i' the earth ere he rot?
First Clown. 'Faith, if he be not rotten before he die (as we have many pocky corses now-a-days, that will scarce hold the laying in), he will last you some eight year, or nine year: a tanner will last you nine year."
(Hamlet, V, 1, 169.)

That the disease was considered disgraceful is evident from these passages:

"O hound of Crete, think'st thou my spouse to get?
No; to the spittal go,
And from the powdering tub of infamy
Fetch forth the lazar kite of Cressid's kind,
Doll Tear-sheet she by name, and her espouse."
(King Henry V, II, 1, 75.)

Also:

"*King.* But like the owner of a foul disease,
To keep it from divulging, let it feed
Even on the pith of life."
(Hamlet, IV, 1, 21.)

The powdering-tub as also the allusions to follow referred to the treatment by sweating and the use of mercury by fumigation, as well as the treatment by diet:

"*Timon.* Art thou Timandra?
Timandra. Yes.
Timon. Be a whore still! they love not that use thee:
Give them disease, leaving with thee their lust.
Make use of thy salt hours; season the slaves
For tubs and baths; bring down rose-cheeked youth
To the tub-fast and the diet."
(Timon of Athens, IV, 3, 80.)

And

"She, whom the spittal-house and ulcerous sores
Would cast the gorge at, this embalms and spices"
(*Ibid.*, IV, 3, 39.)

alludes to the secondary symptoms, while the following passage, also from "Timon of Athens," is a remarkably true and complete description of the tertiary manifestations of the disease:

"*Timon.* Consumptions sow
In hollow bones of man! strike their sharp shins,
And mar men's spurring. Crack the lawyer's voice,
That he may never more false title plead,
Nor sound his quillets shrilly: hoar the flamen,
That scolds against the quality of flesh,
And not believes himself: down with the nose,
Down with it flat; take the bridge quite away
Of him, that, this particular to foresee,
Smells from the general weal: make curl'd-pate ruffians bald;
And let the unscarr'd braggarts of the war
Derive some pain from you. Plague all,
That your activity may defeat and quell
The source of all erection, — there's more gold:
Do you damn others, and let this damn you,
And ditches grave you all."
(Timon of Athens, IV, 3, 150.)

OBSTETRICS.

There is no warrant for a suggestion that gynecology or obstetrics existed as a separate branch of the practice of medicine, yet there are several allusions to the conditions and diseases peculiar to women:

"*Capulet.* My child is yet a stranger in the world,
She hath not seen the change of fourteen years;
Let two more summers wither in their pride,
Ere we may think her ripe to be a bride.
Paris. Younger than she are happy mothers made.
Capulet. And too soon marr'd are those so early made."
(Romeo and Juliet, I, 2, 8.)

We can only surmise whether in the following passage Ægeon refers to the faintness which attends the period of quickening, or the exhaustion of parturition:

"Drew me from kind embracements of my spouse:
From whom my absence was not six months old,
Before herself (almost at fainting under
The pleasing punishment that women bear)
Had made provision for her following me,

And soon, and safe, arrived where I was,
There had she not been long, but she became
A joyful mother of two goodly sons."
(The Comedy of Errors, I, 1, 43.)

A charm against sterility is spoken of by Plutarch, who describes the feast of Lupercalia, in which noble young men run naked through the streets, striking in sport whom they meet with leather thongs:

"*Cæsar.* Caliphurnia!
Caliphurnia. Here, my lord.
Cæsar. Stand you directly in Antonius' way,
When he doth run his course. Antonius!
Antonius. Cæsar, my lord.
Cæsar. Forget not, in your speed, Antonius,
To touch Caliphurnia; for our elders say,
The barren, touched in this holy chase,
Shake off their sterile curse."
(Julius Cæsar, I, 2, 3.)

The following is half medical, half legal, and expresses the merciful theory of the English practice, I believe not of English law, that an unborn child is innocent of the guilt of its mother. When Hermione has been brought to bed in prison, Paulina thus speaks:

"You need not fear it, sir:
The child was prisoner to the womb, and is,
By law and process of great nature, thence
Freed and enfranchis'd; not a party to
The anger of the king, nor guilty of,
If any be, the trespass of the queen."
(Winter's Tale, II, 2, 59.)

When Joan of Arc is condemned to the stake as a sorceress, she claims the privilege of reprieve on this ground:

"*Pucelle.* Will nothing turn your unrelenting hearts?
Then, Joan, discover thine infirmity,
That warranteth by law to be thy privilege.
I am with child, ye bloody homicides:
Murder not then the fruit within my womb,
Although ye hale me to a violent death."
(King Henry VI, Part I, V, 4, 59.)

Here are some pathological observations:

"*Gloster.* Indeed, 'tis true, that Henry told me of;
For I have often heard my mother say,
I came into the world with my legs forward.
. . . . . .
The midwife wonder'd; and the women cried,
'O, Jesus bless us, he is born with teeth!'"
(King Henry VI, Part III, V, 6, 69.)

And,

"*King Richard.* Who intercepts me in my expedition?
Duchess. Oh! she that might have intercepted thee,
By strangling thee in her accursed womb."
(King Richard III, IV, 4, 135.)

Also,

"Finger of birth-strangled babe" (Macbeth, IV, 1, 30.)

indicating a knowledge of the accident of strangulation with the umbilical cord. There are two allusions to Cæsarean section — one in "Macbeth," the child being delivered while the mother was yet alive; the other in "Cymbeline," where the child was taken after the mother's death — hence his name, Posthumus.

"*Macbeth.* I bear a charmed life; which must not yield
To one of woman born.
Macduff. Despair thy charm;
And let the angel, whom thou still hast serv'd,
Tell thee, Macduff was from his mother's womb
Untimely ripped." (Macbeth, V, 7, 41.)

"*Mother.* Lucina lent not me her aid,
But took me in my throes;
That from me was Posthumus ript,
Came crying 'mongst his foes,
A thing of pity."
(Cymbeline, V, 4, 43.)

NERVOUS DISEASES.

A discussion of Shakespeare's delineations of insanity and kindred mental and nervous conditions would extend this already long paper beyond reasonable limits. They are many, and they are truthfully drawn. They cover the whole range of mental perversion, from the foolish imbecility of Simple, Shallow and Speed to the downright madness of Lear. Let it suffice to enumerate only some of the characters:

Bottom, the weaver, Sir Andrew Ague-Cheek, Malvolio, Launcelot Gobbo, Touchstone and Caliban; Othello, racked with jealousy until his senses almost gave way, but though it did not drive him to madness, it did to suicide.

Then there is the melancholy of Jaques, the somnambulism of Lady Macbeth, the hallucinations of the dagger and Banquo's ghost in the character of Macbeth, the senile dementia of Lear,— all portrayed, as the alienists tell us, with depth of insight and accuracy.

Whether or not Hamlet was insane is a question which has given rise to much speculation among the critics and experts, and so far as I am able to see, it is not settled yet. This fact emphasizes the fidelity to truth with which the character is drawn. Certain alienists tell us it is that type of insanity which labors to impress on the observer the feeling that the victim of it is not insane. So skillfully is the character developed, that those coming to the study of it from different points of view find there a complete expression of their own conceptions.

In this connection, one matter should be touched upon, and that is Shakespeare's thoughts on the treatment of insanity. Allusion has already been made to the skillful and humane treatment of King Lear by the doctor. Now this treatment was entirely at variance with the practice of the time. Insanity was uniformly regarded as an infliction of the devil. To cure it St. Vitus was invoked, spells were resorted to, and amulets were worn. Such profound philosophers as Lord Bacon believed in them. The insane were subjected to the harshest treatment. Thus, in "As you Like It" (III. 2, 393) Rosalind says:

"Love is merely a madness; and, I tell you, deserves as well a dark house and a whip as madmen do; and the reason why they are not so punished and cured, is, that the lunacy is so ordinary, that the whippers are in love too."

In view of this, Cordelia's care of her poor old father under the direction of the good doctor seems like the harking forward even to the best of our times.

While we cannot discuss these interesting questions, it will be well to pass rapidly in review some passages, showing Shakespeare's ideas of the relation of the brain to mental states, and

also some observations upon certain nervous diseases. Falstaff, reciting his adventures in the clothesbasket, says:

"Have I lived to be carried in a basket, like a barrow of butcher's offal, and to be thrown in the Thames? Well, if I be served such another trick, I'll have my brains ta'en out, and buttered, and give them to a dog for a new year's gift." (Merry Wives of Windsor, III, 5, 3.)

Again:

"Have I laid my brain in the sun, and dried it, that it wants matter to prevent so gross o'er-reaching as this?" (*Ibid.*, III, 5, 4.)

Laertes, on seeing Ophelia deranged, says:

"O heat, dry up my brains!" (Hamlet IV, 5, 154.)

Othello, when racked by jealousy and goaded by the insinuations of Iago, was supposed to be to be insane. Hence Lodovico says:

"Are his wits safe? is he not light of brain?" (Othello, IV, 1, 275.)

Again:

"*Jaques.* . . . . And in his brain,
Which is as dry as the remainder biscuit
After a voyage, he hath strange places cramm'd
With observation, the which he vents
In mangled forms." (As You Like It, II, 7, 38.)

And:

"*Clown.* Thou hast spoken for us, madonna, as if thy eldest son should be a fool, whose skull Jove cram with brains; for here he comes, one of thy kin, has a most weak *pia mater*." (Twelfth Night, I, 5, 111.)

When Malvolio argues with the clown that he is not mad, the latter replies with pathological point:

"Nay, I'll ne'er believe a madman, till I see his brains." (*Ibid.* IV, 2, 119.)

The following touch upon the relation of the body and soul:

"*Prince Henry.* It is too late: the life of all his blood
Is touch'd corruptibly; and his pure brain
(Which some suppose the soul's frail dwelling-house)
Doth, by the idle comments that it makes,
Foretell the ending of mortality." (King John, V, 7, 1.)

And:

"*King Richard.* My brain I'll prove the female to my soul;
My soul, the father; and these two beget
A generation of still-breeding thoughts." (King Richard, II V, 5, 6.)

Epilepsy is thus alluded to in (Julius Cæsar, I, 2, 242.)

"*Casca.* He fell down in the market-place, and foamed at mouth, and was speechless.
Brutus. 'Tis very like: he hath the falling-sickness."

And:

"*Iago.* My lord is fall'n into an epilepsy:
This is his second fit; he had one yesterday.
Cassio. Rub him about the temples.
Iago. No, forbear,
The lethargy must have his quiet course;
If not, he foams at mouth; and, by-and-by,
Breaks out to savage madness. Look, he stirs." (Othello, IV, 1, 50.)

And here are old John Falstaff's remarks on apoplexy:

"*Falstaff.* And I hear, moreover, his highness is fallen into this same whoreson apoplexy. . . . This apoplexy is, as I take it, a kind of lethargy, an't please your lordship; a kind of sleeping in the blood, a whoreson tingling. . . . It hath its original from much grief; from study, and perturbation of the brain. I have read the cause of his effects in Galen; it is a kind of deafness." (King Henry IV, Part II, I, 2, 107.)

In Othello the Luna theory of insanity is alluded to:

"*Othello.* It is the very error of the moon;
She comes more nearer earth than she was wont,
And makes men mad." (Othello, V, 2, 112.)

DEATH.

Finally, let us glance at a few passages touching upon what may properly be called the medical aspects of death.

The words of Cerimon in Pericles have troubled the commentators:

"Death may usurp on nature many hours,
And yet the fire of life kindle again
The o'erpress'd spirits. I heard
Of an Egyptian that had nine hours lien dead,
Who was by good appliance recovered." (Pericles, III, 2, 82.)

Some say that the text is corrupt, others that Shakespeare was napping, as even Homer nods. But the best texts have it so, and we must conclude that this is what he wrote. In Wilkins (Rolfe's note), a contemporary of Shakespeare, is this passage: "I have read of some Egyptians, who after hours of death (if a man may call it so) have raised impoverished bodies, like to this unto their former health." Probably the belief expressed here was more or less common, and without inquiring into the authenticity for the notion, Shakespeare used the thought.

So also we have to accept this passage without adequate explanation:

"And dead men's cries do fill the empty air." (King Henry VI, Part II, V, 2, 4.)

But he also spoke of death with insight and accuracy, as in this description of violent death:

"But see, his face is black, and full of blood;
His eye-balls further out than when he liv'd;
Staring full ghastly like a strangled man;
His hair uprear'd, his nostrils stretch'd with struggling;
His hands abroad display'd, as one that grasp'd
And tugg'd for life, and was by strength subdued.
Look, on the sheets, his hair, you see, is sticking;
His well-proportion'd beard made rough and rugged,
Like to the summer's corn by tempest lodg'd." (King Henry VI, Part II, III, 2, 168.)

I believe an opinion has long been prevalent that there is a lightning of the faculties just before death; so Romeo in the tomb says:

"*Romeo.* How oft, when men are at the point of death,
Have they been merry! which their keepers call
A lightning before death." (Romeo and Juliet, V, 3, 88.)

The description of old John Falstaff's death, on the other hand, is circumstantial and definite:

"*Quickly.* Nay, sure, he's not in hell: he's in Arthur's bosom, if ever man went to Arthur's bosom. 'A made a finer end, and went away, an it had been any Christom child; 'a parted even just between twelve and one, even at the turning o' the tide: for after I saw him fumble

with the sheets, and play with flowers, and smile upon his fingers' ends, I knew there was but one way; for his nose was as sharp as a pen, and a table of green fields. 'How now, Sir John?' quoth I: 'what, man! be of good cheer.' So 'a cried out — 'God, God, God!' three or four times: now I, to comfort him, bid him, 'a should not think of God; I hoped, there was no need to trouble himself with any such thoughts yet. So, 'a bade me lay more clothes on his feet: I put my hand into the bed and felt them, and they were as cold as any stone; then I felt to his knees, and so upward, and upward, and all was as cold as any stone." (King Henry V, II, 3, 9.)

Note. — The references are to the text of the Leopold Shakespeare.

Clinical Department.

INJURY TO THE SPINAL CORD. OPERATION FOR CORRECTION OF SUBSEQUENT DEFORMITY.*

BY CHARLES F. PAINTER, M.D., BOSTON.

In September, 1905, I saw, at the suggestion of Dr. W. E. Fay, a Swede who had been injured in an elevator accident four years before and sustained a fracture of the spine. Immediately after the accident there was complete loss of power and sensation from the waist down, with a paralysis of both sphincters.

He was sent to the Boston City Hospital, and after a short time a laminectomy was performed by Dr. G. H. Monks. Following this operation improvement in sensation and muscular power took place. Control over the rectal sphincter was re-established. Through the past four years there had been so much improvement that the right leg is capable of normal function both as regards motion and sensation. The left thigh muscles are quite strong, but all of the muscles in the left lower leg except the tibialis anticus are paralyzed. The foot is in a position of pronounced talipes equino varus, and the toes, particularly the great toe and the next one to it, are flexed at the juncture of the first and second phalanges. A pressure ulcer had formed over the end of the great toe. The foot could not be flexed to a right angle with the leg, and the patient had to use crutches in order to get about at all. He was obliged to wear a rubber urinal because of the inability to control his bladder sphincter. Sensation in the paralyzed leg was very good.

Early in November, 1905, the patient was operated upon at the Carney Hospital. A tenotomy of the tendo-achilles was first performed and the foot brought into a position of dorsi-flexion. This also permitted the correction of the varus. The tibialis anticus tendon was then divided close to its insertion and passed through longitudinal slits in the three inner fasciculi of the common extensor tendon and fastened there by silk mattress sutures. A sheath was made for the transmission of the newly attached tendon by closing contiguous fasciæ over it with silk sutures, and the wound was sutured with silkworm gut. The flexor tendons of the great and second toes were tenotomized, the adhesions broken up, and the toes straightened. These toes were fastened to plantar splints made of wooden tongue depressors, and after the sterile dressings were applied a plaster of Paris splint was put on from the toes to the knee, with the foot in the position of dorsal flexion and valgus. Convalescence was uneventful. The wounds closed by first intention and the plaster was kept on for twelve weeks. At the end of that time the patient was allowed to bear weight on the foot unsupported by any splint. He had been allowed to walk on the plaster splint. When the plaster was permanently removed it was possible for the patient to dorsi-flex the foot about 15–20°, and this amount has been improved upon since. He is now (May, 1906) able to walk freely about the house without the aid of cane or crutch, and uses a cane only when walking on the street. He is able to walk a mile in this way over the city pavements. There has been no improvement in the control of his bladder sphincter.

The case is of interest because of the rather unusual distribution of the paralysis for a traumatic case of such gravity making possible the employment of a surgical procedure which is commonly reserved for the paralyses resulting from anterior poliomyelitis.

* From the Orthopedic Clinic of the Carney Hospital.

Reports of Societies.

THE PHILADELPHIA SOCIETY FOR THE STUDY AND PREVENTION OF SOCIAL DISEASE.

Stated Meeting, Thursday Evening, Dec. 20, 1906. The President, Hon. A. M. Beitler, in the Chair.

VENEREAL DISEASE AMONG CHILDREN.

Dr. Thomas Morgan Rotch, of Boston, emphasized the important fact that the laity as well as physicians should understand thoroughly the dangers of syphilis and gonorrhea in young children. A more exact and extended knowledge of these diseases should be acquired by physicians in order that they not only should recognize obscure cases, but also that they should not brand innocent people with the suspicion that they have acquired this disease when they really have not. He claimed that the public should be protected from the stigmata of syphilis and gonorrhea as well as from the diseases themselves. Lantern slides were shown illustrating some phases of syphilis in early life.

CRIMINAL ASPECTS OF VENEREAL INFECTION AMONG CHILDREN (BASED UPON 900 CASES).

Dr. W. Travis Gibb, of New York City, presented this paper, stating that sexual crimes against young children are much more common than is supposed. These conditions were largely attributed to the moral and sanitary environments in which the people of the tenements are huddled together without decent privacy. In his association with the New York Society for Prevention of Cruelty to Children for fifteen years he has examined over 800 girls ranging in age from eight months to sixteen years upon whom rape and other crimes had been committed. Almost 13% of all the children suffered from venereal disease and of these 81% had gonorrheal vaginitis; 2¼% had chancroids. A very small number of cases of syphilis were noted in the number examined. This rarity was attributed to the fact that the cases were examined in a short time after the crime had been committed when not sufficient time had elapsed for the development of the characteristic evidence of the disease, In spite of the large number of cases brought to the attention of the society Dr. Gibb is of the opinion that it is but a small proportion of the actual number of such crimes that actually occur, stating that the great majority of children never tell what has happened to them.

THE SOCIAL ECONOMICS OF VENEREAL DISEASE.

Prof. C. W. A. Veditz, of Washington, D. C., said that the increase in the number of deaths due to venereal disease is startling compared with the increase

in deaths due to other diseases. This increase for the registration area is from 3.4% per hundred thousand in 1900 to 4.8% per hundred thousand in 1904. Admitting the difficulty of securing accurate data concerning venereal disease in other countries, he quoted one authority as stating that there are four million persons in France who have syphilis and who have it in a contagious form. Other estimates exceed this, while not a few are less.

He thinks that the attitude of the public toward venereal disease is apt to undergo much the same change that it has undergone with regard to tuberculosis; from the general tendency to keep the disease secret, with the knowledge of its great extent and danger there came open attention to the subject. This was succeeded by scientific examination, naturally resulting in a more manifold and determined effort to root out the disease. In regard to syphilis Professor Veditz feels that the public is emerging from the first of these stages and entering upon the second. The social economist of to-day, it was said, is interested in raising to the highest level the mental ability and physical efficiency of a community. The importance, therefore, is obvious, of the removal of disease of all kinds, and particularly of those which are hidden away from the public gaze. He believes it exceedingly important that the factor in economic supremacy of the possession of a population which is vigorous physically and mentally should be taken care of, and feels that to the extent to which these are pushed in the background will depend the position of the United States among the nations. From the social economist's point of view he called attention to the necessity that the dangers of venereal disease be carefully studied and movements set on foot looking to the restriction of the disease along with the other two great plagues of mankind, — alcoholism and tuberculosis.

THE LAITY AND VENEREAL DISEASE.

TALCOTT WILLIAMS, Esq., speaking as a journalist, declared that the laity of America would never either register prostitution or insist upon its compulsory examination; neither would it segregate prostitution. He called attention to the fact that segregation is a state nearly always existing in frontier and rudimentary conditions, and that as life becomes more complex segregation disappears. His own personal judgment is that registration, compulsory examination and segregation belong to a less developed state of society and are the remains of a subconscious attempt on the part of society to segregate and brand the social evil. The problem of venereal disease he, therefore, believes must be met without the possible application of these artificial restrictions. He believes that within the next forty years society will suppress the outward manifestations of prostitution. Instances were cited showing that this suppression had already been evidenced. He does not know, however, that this means a suppression of the evil.

That the laity will raise the age of consent he also expressed his confident belief. The rising curve of the age of consent, which in the memory of many had begun in many of the states and in many European countries at twelve, will soon reach eighteen or twenty. The chief advantage of this would be not in a checking of crime, but in the conviction of the criminals.

Furthermore, the laity, in his opinion, is certain to increase the matter of personal prophylaxis against the spread of the disease. From his investigations he has already observed marked evidence of this. This, however, while decreasing the danger of infection, does not remove it.

He deprecated the fact that editorial discussion in the newspaper of the social evil is unpopular, and he believes that the laity can do much to correct this mistaken idea, feeling that more light is always destructive of evil.

THE CLERGY AND VENEREAL DISEASE.

REV. FLOYD W. TOMKINS, S.T.D., referred in this connection to the minister's duty in exhortation, teaching and practice. He should exhort first of all that his people should know their danger from the spread of the disease; and, with a realization of the unspeakable evil, he should urge his people to work against the segregation or licensing of the vice which largely creates the disease. He should further exhort to a method of education in the public schools by which the boys and girls should be clearly taught the dangers of the disease. The minister should also exhort to a higher civilization by the marriage of only those persons who are fit to enter into marriage.

In regard to teaching, the men and boys, the women and girls, should be taught the danger of the disease and of the safeguards against it. There should be taught fearlessly and frankly the dual evil, that the fallen man is just as bad as the fallen woman. He is utterly disgusted with the judgment which welcomes in the social circle the man who has defiled himself, while the woman — sinning, perhaps, from love — is damned forever. There should be taught also the terrible consequences of this sin, not only physically and mentally, but morally and spiritually.

Concerning the subject in connection with practice, he decried the indiscriminate way in which ministers perform marriages, and believes the minister's influence should tend to make it impossible that marriages should be performed without some previous knowledge of the parties. In his own practice he feels that the minister must come near to the physician in making in a certain degree public the results of this disease. He asks whether it is not the duty of the physician, with knowledge that a man about to be married is diseased, to so advise the minister. The minister may then say to the man that he is unwilling to marry him unless he can give a certificate showing that he is free from the disease. He deplores the fact that the publicity which marks dwellings with smallpox and signs of other diseases should do nothing whatsoever about this disease, and declares that society is simply stagnant at this point. He believes it the minister's business to do something concerning it, to plead and pray that the terrors of the disease may be made known, and its dangers guarded against. In closing, he desired that it be known by the members of the medical profession and of the laity that the ministers are ready to work, heart and soul, in this matter.

Book Reviews.

Enlargement of the Prostate, with a Description of the Author's Operation of Total Enucleation of the Organ. By P. J. FREYER, M.A., M.D., M.Ch.; Surgeon to King Edward VII's Hospital for Officers and to St. Peter's Hospital; Late Examiner in Surgery at the Durham University; Lieutenant-Colonel, Indian Medical Service (retired). Third edition. New York: William Wood & Co. 1906.

This volume gives to us Mr. Freyer's personal experience of total suprapubic prostatectomy,

which consists in the performance of 312 operations with an operative mortality of 7% and complete success with all of the patients not included in that 7%.

This record is much the best and includes a much larger number of suprapubic prostatectomies, or for that matter of prostatectomies by any method thus far recorded by a single operator; the next largest, so far as we know, being that of Young, of Baltimore, who has published the reports of 150 total perineal prostatectomies performed by him.

The information acquired by Mr. Freyer in so large a personal experience could not fail to be instructive and valuable. And so it is. His descriptions of the anatomy of the normal gland, of the capsula vera, of the outer fibrous sheath, their mutual relations and the practical bearing which they have upon the operation of total prostatectomy, while in no respect new, are clearly and concisely expressed, and on this account to be commended. The views which he presents with regard to etiology of the enlarged prostate are those with which we are in sympathy, and are to the effect that none of the theories yet advanced are adequate to explain the occurrence of this condition.

Two points in the course of the lectures we note with satisfaction and are in accord with them. They are with reference to the dangers, difficulties, and impossibility in some instances, connected with the catheter treatment, and the fact that Mr. Freyer does not counsel turning patients out of bed within one or two days after the performance of prostatectomy, a custom which is so emphatically insisted upon as being desirable by a number of those surgeons who have recently entered this surgical field.

Another interesting feature of one of the lectures is the manner in which Mr. Freyer determines in any given case whether or not the enlarged prostate can be readily enucleated. This fact he states that he can determine with great probability, by means of rectal and bimanual palpation.

Ninety-seven of the 154 pages composing the lectures are devoted to the description of his so-called new operation and to detailed reports of the operations done by the author and comments upon them, 38 deal with such aspects of the subject as anatomy, pathology, symptoms, catheter treatment, etc., and the remaining 16 pages are devoted to the egotistical reiteration of his pretensions to have been the discoverer of total enucleation of the enlarged prostate and to a regrettable continuance of his controversy with Dr. Fuller of New York.

It is unfortunate that Mr. Freyer's wide and successful experience, and his admirable record of suprapubic prostatectomy, which is in itself so creditable to him, should be marred by his pretentious claim to be the discoverer of the operation, and that he should have discredited himself thus in the eyes of the many surgeons who are familiar with the history of the evolution of the operative treatment of the enlarged prostate, a good many of whom had done, and some of whom had clearly described, total enucleation of the enlarged prostate at various times varying from two to ten years previous to Mr. Freyer's first operation.

So much space in the volume before us is devoted to a renewed effort on the part of Mr. Freyer to substantiate his assertions with regard to this matter that we cannot very well review the otherwise excellent work without giving some heed to them, nor is it just to the surgeons who have been for greater or less time — some of them ten years — his predecessors in the field, and who have been more interested in establishing the truth and in showing the value of total prostatectomy than in sounding their own praises, to pass over in silence in a formal review so flagrant an example of misrepresentation of facts or ignoring of them, as is shown by Mr. Freyer in parts of the present publication. A few quotations from it will show just what Mr. Freyer's view of his own work and position in connection with operative treatment of the enlarged prostate is:

Page 35: "Shortly after these lectures were delivered, on Dec. 1, 1900, I performed *a new*, and what at first sight seemed a very formidable, operation for radical cure of the disease, namely, total enucleation of the prostate." He then refers to his first published reference and description of the operation, which was in the *British Medical Journal*, July 20, 1901. It will be noticed that he does not even limit the scope of the claim to having introduced a new operation, by the use of the word "suprapubic" in connection with it. Total enucleation of the prostate through a median perineal urethral incision and enucleation of the lateral lobes with the finger tip through an incision on either side of the prostatic urethra and by the snaring off of the middle lobe when present, was described and urged by Dr. Gouley, of New York, in 1873 ("Diseases of the Urinary Organs," New York, 1873 and 1879).

Leisrink (*Arch. für klin. Chir.*, 1883, Berlin, xxviii, p. 578) reported a total extirpation done by him of the prostate in one mass through a perineal dissection in a case of malignant disease of the gland. In this case there was an operative recovery.

Pyle describes an operation for total enucleation of the prostate through a median perineal incision without injury to the urethra (*N. Y. Med. Rec.*, 1892, vol. xlii).

In 1896 Alexander (*N. Y. Med. Jour.*, lxiii, p. 171, also *Trans. N. Y. Acad. Med.*, Dec. 15, 1898) described total finger enucleation of the enlarged prostate by a combined operation.

Nicoll (April 14, 1894, London *Lancet*) described total finger enucleation through the perineum, aided by downward pressure by the fingers upon the prostate through a suprapubic cystotomy incision.

Fuller (1895, June, *Jour. of Cutan. and Gen.-Urin. Dis.*, also, 1900, "Diseases of the Genito-Urinary System," New York, the Macmillan Company, 1900, p. 414, etc.) described

his manner of doing suprapubic total prostatectomy in language so clear as to be absolutely unmistakable in its meaning to any fair-minded reader; the only difference in this operation and that of Mr. Freyer, published respectively six years and one year subsequent to Fuller's publications, consists in the trivial fact that Freyer reaches the gland by tearing through the floor of the bladder with the finger nail as was recommended twelve years previously by McGill, whereas Fuller accomplished the same purpose by the use of a pair of serrated scissors. Fuller's description of the operation as practised by him leaves no room for doubt that total removal of the prostate is accomplished by it and by finger enucleation (except in the few cases in which the gland cannot be enucleated), and he expressly states that the prostate is to be taken out either *in one mass* or lobe by lobe according to circumstances.

Any one who wishes to verify the above statements may do so by reading the articles to which we have given the references. No one who takes the trouble to do this can for a moment believe that Mr. Freyer has the least right to claim that he is the first surgeon to have performed total enucleation of the gland by the suprapubic route or perineal route, or even that he is the first person to have removed it in one mass. Mr. Freyer not only ignores the earlier cases of total enucleation by the perineal route, but utterly disregards as well the very large number of such cases that have been reported between 1900 and the present time, December, 1906, the latter period being that in which all Mr. Freyer's operations have been performed. A number of reported cases in which total enucleation has been done by the perineal methods of one kind or another is at least 1500. The operations by this route present a much smaller mortality than is shown in the series of Mr. Freyer and the results of the operations have certainly been quite as good as those obtained by him. In the face of such facts as these that we have given, it requires a quality of egotism which we are happy to say but few persons possess who have the standing in the profession of Mr. Freyer to allow such assertions as that which we have already quoted and the following one of Mr. Freyer to be made: "I submit that the results of this operation, so subversive of all preconceived ideas regarding the enlarged prostate, so revolutionary in its effects, so complete and permanent in its cure, are truly remarkable. . . . I believe that I shall not be accused of exaggeration when I state that all previous so-called methods of radical cure of enlarged prostate were utterly unsatisfactory," etc.

It is hardly probable that any array of facts, no matter how conclusively they might disprove Mr. Freyer's claim to being the discoverer of the operation of total enucleation of the enlarged prostate, would be convincing to that gentleman himself, nor is it especially important that they should be so. It is somewhat important that the general mass of the profession who, as sometimes happens, might in this matter also make the mistake of doing an injustice to ome surgeons who are not given to loudly acclaiming their works, by believing the assertions of Mr. Freyer, should have the opportunity of knowing at least some of the facts of the case.

Aids to Surgery. By JOSEPH CUNNING, M.B., B.S., F.R.C.S. Eng., Senior Res dent Medical Officer, Royal Free Hospital. New York: William Wood & Co. 1906.

This book of 394 pages, one of the "Students' Aids Series" volumes, is of small size and attractive appearance. It is intended to serve as an aid to students preparing for examination, *i.e.*, an epitome of the important facts of the subject. The writer has tried to follow closely the arrangement of the "Manual of Surgery" by Rose and Carless; also the book of Cheyne and Burghard, and Bland-Sutton's Tumors, Innocent and Malignant.

The book is of convenient size, is well arranged with the usual table of contents and appended index. This plan, with the system of paragraphing, enables the reader to readily find a desired subject. The subject matter of the text seems to show that the plan of the author has been carried out and that the essential facts have been concisely presented. The book represents the English practice of surgery as regards detail of treatment.

A Primer of Psychology and Mental Disease. For Use in Training Schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. BURR, M.D., Medical Director of Oak Grove Hospital (Flint, Mich.) for Mental and Nervous Diseases. Third edition thoroughly revised with illustrations. Pp. viii, 183. 12mo. Philadelphia: F. A. Davis Company. 1906.

There is little to add to our former notices of this small but useful manual of instruction for nurses in hospitals for the insane for whom the "primer" has such an abundance of sound and practical advice as to make it a valuable book for this purpose. The recent additions, however, which relate chiefly to the classification and medical treatment of insanity, strike us as too meagre to be of real benefit to the medical student for whom they are especially designed and, for the most part, out of place in a course of instruction for nurses.

THE RAISING OF FEES IN GERMANY. — On Dec. 18, 1906, a meeting of the medical profession was held in Berlin at which representatives of 34 medical associations with a collective membership of 2,647 were present. It was unanimously agreed that from Jan. 1 the fees in private practice should be raised. The decision applies equally to single fees and to payment for longer or shorter periods of attendance, as in the case of family doctors. — *British Medical Journal.*

THE BOSTON

Medical and Surgical Journal.

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REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES NAVY.

The report of the Surgeon-General of the Navy for the fiscal year ending June 30, 1906, is of special interest on account of the progress which has been made in various departments of the service and also because of certain statements regarding the situation in Panama. It appears from the report that malaria was unavoidably contracted by certain marines of a detachment sent to the Isthmian Canal Zone during the early part of last summer. Mosquitoes were numerous at the point where the camps were pitched, and in spite of the fact that each man was provided with a mosquito net and other precautions were taken, it was impossible to avoid bites. Prophylactic doses of quinine were given, but about a month after the arrival of the men in Panama 135, or about 34%, of the total strength of the battalion had malarial attacks. A little later as many as 72% suffered from acute malarial paroxysms, and it is stated as probable that the entire battalion was infected. No deaths occurred and the combination of a free administration of quinine and return to a northern climate rapidly reduced the percentage of cases.

This situation would appear not altogether encouraging in view of our supposed capacity to prevent infection. A daily contemporary, commenting on the foregoing official statements, draws attention to the apparent conflict of reports coming from the canal zone. We quote a paragraph:

"At present, alas, the public mind is constantly disturbed and the people's emotions constantly harrowed by conflicting allegations. From the Canal Commission we hear that the long wait in respect of actual dirt flinging has been utilized to the perfection of a sanitary system such as the world has never dreamed of in its most optimistic moments. Assurances reach us to the effect that the Americans on the Isthmus are now well housed, well fed, furnished with every appliance of modern civilization, immersed in an atmosphere of applied and organized hygiene, and altogether lifted to the very dizziest pinnacles of Olympian luxury. The mosquitoes have been exterminated, therefore yellow fever is impossible. The living quarters are, as the President once said about something else, absolutely 'flawless.' On this showing none but a determined and malignantly insubordinate malcontent could get sick or fight a mosquito or exhibit the smallest symptom of genuine physical indisposition."

It must be acknowledged that the situation is somewhat disturbing, if malaria in so short a time can gain such a foothold among troops who are presumably given the benefit of the most complete prophylaxis known. It is also unfortunate, and in this we agree with our contemporary, that the exact facts should not be known regarding the possibility of infection among those who enter the canal zone from northern climates. It is certainly possible that the particular spot at which this battalion camped was especially infested by malaria-carrying mosquitoes. In that case, it would have been well to have made the camp elsewhere. If it were not the case, the supposition is forced upon us that the danger of malarial infection in the canal zone is a very real one and that the authorities have not yet found a way to cope with it satisfactorily. However this may be, it is illuminating to have so definite a statement on the part of the Surgeon-General of the Navy to contrast with the optimistic reports regarding the control of infectious diseases which are continually reaching the public from other sources.

The report contains many other matters of interest, suggestive particularly of the remote regions to which our navy is penetrating and of the difficulties encountered in this often arduous service.

LECTURES ON THE PROBLEMS OF INSANITY.

We publish in another column an announcement of lectures on the problems of insanity to be given at the Academy of Medicine in New York. This action on the part of the Psychiatrical Society is significant of the general tendency to popularize various branches of medical science. The situation is such at the present time that the

progressive work of one department of medicine is often not known in detail to persons interested in other departments, and naturally much less by the laity. It is, therefore, advisable that at stated intervals lectures should be given by men who stand in the forefront of investigation in certain specialized fields to others of the profession and such of the laity as may be interested to attend. This is peculiarly true of psychiatry. Regarded from a broad point of view there are few branches which are more important or more essential to a general medical education, and certainly it will be admitted that, in this country, at least, a knowledge of the real problems of psychiatry is lacking to an extraordinary degree among the rank and file of the profession. It is, therefore, a wise move on the part of the Psychiatrical Society of New York to attempt to inform the profession regarding the significance of modern psychiatric methods and their bearings upon the field of general medicine. It will not be questioned that those who have been selected to give these lectures are men who may speak with authority.

In announcing the course the society states as its object that a public discussion of the facts of insanity is of fundamental importance for a natural development of public and personal hygiene. It is also altogether desirable to replace the traditional horror and consequent disregard of these facts by an interest on the part of the public in matters which should not be longer neglected. Furthermore, co-operation is needed now as perhaps never before to bring together and consider intelligently the many interests which now work independently in social reform, schools, hospitals, courts and institutions.

In this connection it is noticeable that in the long list of lectures announced by the faculty of the Harvard Medical School to be given to the laity during the winter no one of the subjects chosen bears upon the great problem of insanity. It may, perhaps, justly be said that the subject is too subtle and, perhaps, in too indeterminate a condition to permit of profitable lectures to the people at large. With this point of view we should in a measure agree, but not wholly. A lecture, or several lectures, might well be given in this course which should have for their main object a removal of the prejudice against hospitals for the insane and an insistence on the fact that mental disease has many analogies with physical disease, that the two often cannot be sharply separated and that the popular attitude toward mental aberration should be as reasonable as toward other types of disease. A skilful lecturer could certainly do something toward impressing such conceptions even upon the popular mind. We hope, therefore, that another year, if such a general public course of lectures is given, this subject in its important bearings may receive the consideration which it deserves.

Quite apart, however, from the people at large, it would be well could the example which New York is setting in this matter be adopted elsewhere. There is no question that such lectures, addressed primarily to an audience of physicians and others interested in social and economic problems, would be well attended, and that thereby a beginning at least would be made toward a fairer recognition of the claims of psychiatry in the modern medical curriculum. We stand far behind our European *confrères* in this respect.

THE RESIGNATION OF DR. WILLIAM L. RICHARDSON FROM THE BOSTON LYING-IN HOSPITAL.

THE resignation of Dr. William L. Richardson as visiting physician of the Boston Lying-In Hospital, because, as he felt, "that the time has come for younger men to do the work," marks an epoch in one of our leading institutions. A short statement of what has been accomplished since Dr. Richardson re-established the practically defunct institution will be of interest.

The hospital was incorporated in 1832, with a building on Washington Street, near Waltham, to care for poor and deserving mothers during childbirth. In 1853 it bought land and erected a building on Springfield Street. The hospital was no longer free and every patient was charged a weekly price for board, but the income was insufficient for its support. At the end of a year it had more than exhausted its income, consequently it was closed and its building was sold in 1857. In 1871 and 1872, active measures were taken by Dr. Richardson to revive the work upon its original basis as a free hospital. The house, 24 McLean Street, was purchased and on Jan. 1, 1873, the hospital was re-opened with eighteen beds. Dr. William L. Richardson and Dr. Henry Tuck were the visiting physicians. Mrs. E. J. A. Higgins was placed in charge where she still remains, well known and remembered by all the doctors and nurses who have attended the hospital during the last thirty-four years.

Since that beginning the hospital has continually grown and constantly enlarged and extended its work. Every one who has known the institu-

tion and its work realizes that its growth and its efficiency, both in the work which it has accomplished and in the education it has furnished, are largely due to Dr. Richardson, who, since 1890, has been the sole visiting physician in charge.

A few words as to the growth and work of the hospital will be of interest. In 1877 a second house on McLean Street was added. In 1887 two more houses were purchased. In 1890 the adjoining building, 16 McLean Street, was purchased and in 1891 a fund of over one hundred thousand dollars was raised by subscription, and the old buildings were remodelled and the present hospital erected. The work accomplished has increased equally with the buildings. An out-patient department was established in 1881 to care for mothers in their homes; in 1888 a training school for nurses was established.

The hospital not only cares for the poor and deserving during childbirth, but even more important, perhaps, it furnishes education and experience to doctors, medical students and nurses whose knowledge, experience and skill are invaluable, not only to this community, but wherever they may go to practise their profession. Most appreciative recognition is due Dr. Richardson for the systematic development of the practical teaching of obstetrics through the elaborate organization of an obstetrical service in the homes of the poorer classes. One hundred and seventy-eight doctors have there served as house physicians up to Jan. 1, 1906. Prior to the establishment of the training school for nurses in 1888, 77 nurses had performed a satisfactory service. Since the establishment, 326 nurses have graduated and received diplomas. The work done by the hospital has constantly increased. Starting in 1873 with 160 patients, in 1883, 242 were treated; in 1893, 501; in 1903, 654, and in 1906, 785. The total number of patients treated in the hospital is 14,913. The out-patient department opened in 1881 and cared for 20 patients in 1882, 191 in 1887, 1,079 in 1892, 1,829 in 1902 and 1864 in 1906. The total number of out-patients cared for has been 27,482.

The small number of deaths has been remarkable. With 14,913 patients (mothers) treated in the hospital, only 242 have died from any cause, and but 88 of these deaths have been due to septicemia. This is truly a remarkable record when one considers how many emergency cases, many of them nearly moribund, are taken to this hospital and the class of patients it has to treat. The record of deaths in the out-patient department is equally remarkable, — from its inception to Jan. 1, 1906, with 25,618 mothers attended, and only 54 deaths, while in the year 1906, 1,864 patients were cared for with no deaths.

This hospital, under Dr. Richardson's leadership, was one of the first in the world to adopt the antiseptic treatment in confinement cases. What the adoption of this treatment, in 1884, has accomplished is strikingly shown by the figures. From 1872 to 1907, 14,913 patients in all have been treated with only 88 deaths from septicemia, a little over one half of 1%.

The figures by years are interesting:

	1879	1880	1881	1882	1883	1884
Patients,	212	218	259	228	242	310
Deaths from septicemia,	10	11	6	16	11	5
	1885	1886	1887	1888	1889	1890
Patients,	308	373	388	446	456	509
Deaths from septicemia,	2	0	1	1	1	0

In 1884, when 2,661 patients (mothers) had been cared for, there had been 64 deaths from septicemia, or about 1%. From 1884 to 1907, 12,252 patients were cared for with only 24 deaths from septicemia, or about one fifth of 1%. Many of these cases were brought into the hospital as emergency cases, and too late for any successful treatment.

The credit for this result should in large measure be given to Dr. Richardson, as should that for much of the work that the hospital has accomplished during the thirty-four years he has served as its physician since he helped to re-establish it in 1872. We print elsewhere the resolutions which were adopted at the annual meeting of the corporation and which were spread upon its records in recognition of his able and efficient services to the institution.

THE TOXIC ACTION OF DIGITALIS.

The pulse characteristic of overdoses of digitalis is well recognized and its occurrence serves as a danger signal in digitalis therapy. However, there is another manifestation of digitalis poisoning not so common, which may escape attention. This is a condition of auriculo-ventricular arrythmia or heart block, due to a decreased conductivity in the auriculo-ventricular conduction fibers and caused by the action of digitalis on them. This phenomenon can be produced in animals by larger doses of digitalis and has been studied in man by Mackenzie and others. Hewlett[1] has recently reported a case in which this condition followed the use of 15 minims of the normal solution of digitalis taken

[1] Jour. of Am. Med. Asso., Jan. 5, 1907. See abstract on p. 124 of this Journal.

three times a day, for ten days. In most cases auriculo-ventricular arrythmia can be recognized without the use of pulse tracings, by noting the discrepancy between the number of venous pulsators visible in the neck and the number of ventricular beats palpable at the apex. However, if cardiac cases are studied by means of tracings taken from the jugular vein, a group can be separated in which it may be anticipated that digitalis will be borne badly. These are cases in which the time between the wave of the auricular contraction and that of the transmitted carotid pulse is greater than 0.2 seconds. Such cases have a decreased conductivity between auricle and ventricle, and digitalis is likely to further decrease it and cause auriculo-ventricular arrythmia. The use of digitalis in these cases may lead to serious consequences. It is important, therefore, to recognize the condition early and stop the use of digitalis.

MEDICAL NOTES.

PASTEUR A HERO OF FRANCE. — It is announced that a national vote on the favorite heroes of France resulted in Pasteur receiving 634,280 votes, the largest number cast for any one person.

LECTURES ON PROBLEMS OF INSANITY. — The Psychiatrical Society of New York has arranged for a series of four lectures on problems of insanity, to be held under the auspices of the Academy of Medicine, at 17 West 43d Street, on Saturdays, Jan. 19, Feb. 2, Feb. 16 and March 2, 1907, at 8.30 P.M. The purpose of these lectures is to put within the reach of the medical profession and also of the non-professional leaders of sociological interests a program of work and facts for orientation, with a view to the organization of a movement towards prophylaxis and the development of sound interests in this eminently important topic. The first lecture will be given by Dr. Adolf Meyer, on "Modern Psychiatry, Its Possibilities and Opportunities"; the second lecture, by Dr. August Hoch, "The Manageable Causes of Insanity, exclusive of Heredity;" the third lecture, by Dr. C. L. Dana, "The Data of Heredity and Their Application in Psychiatry"; and the fourth lecture, by Dr. Allen McLane Hamilton, "The Development of the Legal Regulations Concerning the Insane."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Jan. 23, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 73, scarlatina 90, typhoid fever 5, measles 12, tuberculosis 47, smallpox 0.

The death-rate of the reported deaths for the week ending Jan. 23, 1907, was 23.38.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, Jan. 19, 1907, was 244, against 243 the corresponding week of last year, showing an increase of 1 death and making the death-rate for the week 21.13. Of this number 126 were males and 118 were females; 238 were white and 6 colored; 138 were born in the United States, 103 in foreign countries and 3 unknown; 57 were of American parentage, 155 of foreign parentage and 32 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 76 cases and 2 deaths; scarlatina, 160 cases and 1 death; typhoid fever, 9 cases and 2 deaths; measles, 13 cases and 0 deaths; tuberculosis, 59 cases and 24 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 40, whooping cough 1, heart disease 26, bronchitis 7 and marasmus 4. There were 18 deaths from violent causes. The number of children who died under one year was 39; the number under five years 48. The number of persons who died over sixty years of age was 67. The deaths in public institutions were 80.

There was 1 case of cerebrospinal meningitis reported during the week. No deaths.

BEQUEST TO THE QUINCY, MASS., HOSPITAL. — By the will of Caroline M. Beale $5,000 is left to establish a permanent free bed at the Quincy Hospital in memory of the father and sister of the testator.

A TUBERCULOSIS EXHIBITION. — A tuberculosis exhibition was held at the Roxbury, Mass., Court House from Jan. 17 to Jan. 23. Addresses on the general subject were delivered each evening by various physicians.

A CENTENARIAN. — It is stated that Mrs. Tobey Rosenburg, of Burlington, Vt., has died at the reputed age of one hundred and three years. She is said to have been the oldest woman in Vermont.

THE DEATH OF MR. GEORGE F. FABYAN. — In the death of Mr. George F. Fabyan, which occurred Jan. 18, in Brookline, Mass., the Harvard

Medical School loses a benefactor. Some years ago as a memorial to his father, Dr. George Fabyan, Mr. Fabyan endowed the chair of comparative pathology at the medical school, the incumbent of which from its foundation has been Dr. Theobald Smith.

Avenue Louis Pasteur. — The order authorizing the construction of the new Avenue Louis Pasteur leading up to the Harvard Medical School buildings has been signed by those in authority. Certain restrictions regarding the height of buildings and their character are established together with the usual park restrictions.

The Boston Children's Hospital. — At a recent meeting of the managers of the Children's Hospital the necessity of a new hospital building was strongly urged. The present building is regarded as inadequate for the demands now being made upon it, and it is hoped that funds may speedily be raised to erect a more suitable building on the ground which the hospital has acquired in immediate proximity to the new Harvard Medical School buildings.

Lectures on the Relation of the Medical Profession to the Law and the Courts. — A course of lectures will be given by Ezra R. Thayer, LL.B., on "The Relation of the Medical Profession to the Law and the Courts," on successive Monday evenings, beginning Feb. 4, in Lecture Room 205 of the Administration Building of the Harvard Medical School, at eight o'clock. These lectures are open to all members of the medical profession.

Prevalence of Rabies in Massachusetts. — According to recently compiled statistics at least six persons have died in this state as a result of dog bites during the eleven months ending Dec. 1. During this time it is stated that more than a thousand dogs were reported as having the disease exclusive of those in Boston. As a result of Dr. Langdon Frothingham's examinations of the heads of animals suspected of the disease he found that out of 151, 110 dogs, 7 cows and 2 horses had the disease. He was also able to demonstrate the disease post-mortem in a boy who died of the disease.

NEW YORK.

Deaths by Violence. — In the Borough of Manhattan last year 5,890 deaths were certified to in the coroners' offices. This is a little more than 7% of the total number of deaths in New York City. Two thousand, one hundred and sixty of the coroners' cases were deaths by violence: 97 persons were killed by surface cars, 32 by the steam railways, 24 by automobiles, 17 by subway trains, 14 by elevated trains and 125 by other vehicles. There were 398 suicides, 97 murders by shooting and stabbing, and 3,730 deaths from natural causes. A striking feature of the coroners' report is the number of tunnel casualties. Sixty-eight men were killed in the various tunnels under process of construction between Manhattan and Long Island and New Jersey. As the blasting methods employed in these tunnels have been freely criticised, and it is asserted that by proper care caisson disease, fatal to many workers in compressed air, can be entirely prevented, it would seem that closer official attention to both these matters is called for.

Current Literature.

The Journal of the American Medical Association. Jan. 5, 1907.

1. Novy, F. G. *Trypanosomes.* (To be continued.)
2. *Ravogli, A. *Lupus Vulgaris of the Ear in Relation to Its Late Results.*
3. *Gaylord, H. R., and Clowes, G. H. A. *Evidences of Infected Cages as the Source of Spontaneous Cancer Developing among Small Caged Animals.*
4. *Capps, J. A. *The Effect on the Blood Pressure of the Withdrawal of Fluid from the Thorax and Abdomen.*
5. *Musser, J. H. *Acute Infections of the Thoracic Cavity.*
6. *Forchheimer, F. *The Treatment of Pleurisy with Effusion.*
7. *Burr, C. W. *Trauma of the Head as a Cause of Insanity.*
8. *Gordon, A. *Migrainic Psychoses.*
9. Richards, G. L. *Atrophic Rhinitis: A Reproach to Rhinology.*
10. *Hewlett, W. A. *Digitalis Heart Block.* (Clinical Note.)

2. Ravogli reports two cases of lupus of the ear, in both of which tubercle bacilli were present, both producing great destruction of tissue, one proving fatal. The deeper structures composed of connective tissues show less resistance to the disease than the derma, so that when these are attacked serious results may follow. In treatment touching the ulcus with pure lysol is advocated. Finsen light and x-rays have not been uniformly beneficial.

3. Gaylord and Clowes report that of 7 rats, kept for a year in a cage previously occupied by Dr. Loeb's rats which were implanted with sarcoma, 3 developed sarcoma. Control animals in cages sterilized after containing sarcomatous rats in no case developed sarcoma. The rarity of sarcoma in rats is shown by the fact that of 57 dealers in small animals who had handled approximately 20,000 rats in the past three years, only one or two had seen such tumors. Another instance of similar development of tumors in a single cage, this time of cancers especially of the breast in mice, has also come to the notice of the authors. In this cage containing about 100 mice at a time, during three years 60 spontaneous tumors have developed. A standing offer of $25 for any small animal affected with cancer, sent to 325 dealers, has brought in only 23 such animals in a year. These observations are taken as evidence that the infectious theory of malignant tumors cannot be discarded.

4. Capps has measured the blood pressure before, during and after the withdrawal of fluid from the chest in 15 cases. In all the blood pressure fell during the aspiration, rising somewhat within an hour afterward. This fall in blood pressure was greatest in cases where the amount of fluid removed was large, or where it was drawn off rapidly. When the effusion was of long duration, the fall of pressure was more marked than in cases of recent development. Senile changes in blood vessels and heart favored a rapid and deep fall of blood pressure. Abdominal paracentesis in 9 cases also resulted in a fall of blood pressure. Further observations are to be made with regard to cases where siphonage and not aspiration is used, and as to the results to be obtained from measures to prevent and relieve untoward circulatory symptoms appearing during the withdrawal of fluid.

5. Musser urges the importance of detecting empyema in its earliest stages before any large accumulation has occurred. The disease is at first local, whether beneath the chest wall, between the lobes, or between lung and diaphragm. It is always secondary to some antecedent condition, such as serous pleurisy or pneumonia. The symptoms are those of an infection additional to the primary condition. As local symptoms pain and *tenderness* are mentioned with great emphasis. When the collections of pus are small and between lobes the physical signs will be slight. Diminution of expansion on the affected side may be the first sign noted, to be tested by the method of Litten. Dullness on percussion, often changing during respiration or change of position, often deep dullness along the septa between lobes, and Skoda's resonance occur. Breath sounds may be diminished and friction may be present. The x-ray may be of assistance. Exploratory puncture is to be avoided; exploratory operation is preferable. Pulmonary tuberculosis is to be distinguished by difference in its clinical course, absence of leukocytosis, pulse and respiration increased out of proportion to physical signs, and multiple foci of disease, with perhaps bacilli in the sputum. Multiple abscesses are to be excluded; they occur usually after bronchopneumonia and give signs of small foci of consolidation rather than of pleural lesions. The character of the sputum will suggest their presence. The treatment of empyema when the diagnosis is made is operation as soon as possible.

6. Forchheimer discusses the method of spontaneous absorption of pleuritic effusions. Whether such absorption occurs by lymphatics alone or by blood vessels as well cannot be decided. It is known, however, that in exudative processes the absorption by the pleura is diminished, and that this depends upon the amount as well as the character of the exudate; the greater the effusion the less the absorption, the more fibrin the less absorption. In treatment of acute serous effusions many methods have been used from the internal use of salicylates to catharsis, dieuresis, etc., with restriction of the intake of fluids, and other dietetic methods. All, however, are unnecessary if the fluid is removed by thoracentesis. The withdrawal of even a little fluid will often suffice to start natural absorption. Aspiration should be slow, and only a part of the effusion is to be removed at a time. The patient should be as nearly as possible in the recumbent position. Chronic serous effusions sometimes occur, which return repeatedly after aspiration. In these obstinate cases injections of iodin have been tried but discarded. Injections of salt solution are of little use. In such cases surgical treatment with freeing of adhesion. may be considered. Empyema must be regarded as an abscess, and treated accordingly. Where adhesions prevent the expansion of a compressed lung, decortication of the lung and discission of the pleura have been of benefit.

7. Burr believes that although trauma is accepted as an immediate exciting cause of insanity, predisposition of the patient to insanity is necessary to its appearance. He asserts with confidence that there is no characteristic type of post-traumatic insanity.

8. Gordon reports twelve cases of migraine associated with mental symptoms, observed within the last four years, and all presenting similar types of derangement, namely, confusion, delirium, usually with hallucinations and stupor. The hallucinations were usually visual, though gustatory and auditory hallucinations were also observed. The confusional stage predominated in all, and was frequently accompanied with illusions of identity, incoherence and disturbance of orientation. Some of the cases suggested psychic epilepsy or procursive epilepsy. In the majority of cases the mental symptoms occurred during the attacks, and in some they continued twenty-four hours after the subsidence of the migraine. In some cases, however, they occurred either before or after and they lasted in some cases for twenty-four hours after the subsidence. He does not think that he can explain these conditions as epileptic or hysterical, though in some cases they suggested it. The special point is their association with an autotoxic condition, which is the basis of migraine.

10. Hewlett gives the history of a case in which the use of digitalis is followed by slow and irregular pulse, the irregularity consisting in a dropping of the beats accompanied with precordial distress. Auscultation showed that the dropping was not due to the occurrence of extra systoles, but that during the intermission, there was either absolute silence or at most only a faint and indefinite soft sound over the base of the heart. Simultaneous tracings from the veins of the neck and the apical region showed two forms of irregularity, the first due to a blocking of the cardiac contraction wave passing from the auricles to the ventricles, while in the second form the beat was also dropped out, but there was no auricular pulsation in the pause of the ventricular rhythm. He discusses the mechanism and causes of these phenomena and assumes the probability of a block occurring above the auricles as well as at the auricular ventricular septum. The article is illustrated by tracings.

ANNALS OF SURGERY.

JANUARY, 1907.

1. *LILIENTHAL, H. *End-to-End Arteriovenous Angeiorrhaphy.*
2. *CORNER, E. M. *Rotary Dislocations of the Atlas.*
3. WALKER, G. *Occlusion of the Portal Vein Due to Surrounding Inflammatory Adhesions.*
4. BULLITT, J. B. *Obliteration of the Stomach as a Result of Gastric Ulcer.*
5. *KILIANI, O. G. T. *Typhoid with Double Perforation of Ileum and Perforation of Gall Bladder.*
6. COFFEY, R. C. *Intestinal Intussusception.*
7. STAEHLIN, E. *Resection of Ten Feet Two Inches of Small Intestine.*
8. CABOT, H., and BINNEY, H. *Fractures of the Os Calcis and Astragalus.*
9. ELY, L. W. *Old Fracture of the Tarsus.*
10. BROWNLEE, H. F. *Colossal Dermoid Cyst of over Fifty Years' Growth.*
11. CHEESMAN, W. S. *Extirpation of a Hypernephroma Weighing Four and a Quarter Pounds, from an Infant Twenty Months of Age.*
12. *QUICK, E. *Intraperitoneal Rupture of the Urinary Bladder.*
13. BELFIELD, W. T. *Drainage of the Prevesical Space Through the Perineum in Supra-pubic Cystotomy.*
14. *LUSK, W. C. *Drainage of Prostatic Abscesses through the Ischio-Rectal Fossa.*
15. BLAKE, J. E. *Silverized Catgut: A Study of the Method of Crédé for Sterilizing Catgut without Heat.*
16. CUPLER, R. C. *Note on Gonorrheal Osteomyelitis.*

1. Lilienthal reports an unsuccessful attempt to avoid gangrene of the leg in an arteriosclerotic patient by reversal of the circulation after the method of Carrel and Guthrie.

2. Dislocation of the atlas may be recognized clinically by the following points: (1) A history of accident in which the violence is commonly applied to the front and top of the head; (2) symptoms of paralysis or anesthesia are absent; (3) the neck is painful to touch and to move, and motion is restricted; (4) the characteristic position of the head is slightly flexed and turned to one side; (5) examination of the pharynx shows two prominences,—the one due to the forwardly displaced transverse process, the other to the axis; (6) lateral x-ray examination shows a forward displacement of one side of the atlas. There is usually nothing which will absolutely exclude fracture

of the odontoid process. In the treatment of this lesion, unless the integrity of the odontoid process can be fairly well established, steps should be taken to immobilize the head and neck by a plaster of Paris collar. With an intact odontoid process, however, the dislocation should be reduced under ether and the head then immobilized.

5. Kiliani reports a case of a man of forty, suffering from typhoid fever, on whom laparotomy was performed for symptoms of perforation. Operation revealed double perforation of the ileum near the ileo-cecal valve, and a perforation of the gall bladder as well. The intestine was sutured and the gall bladder removed. The typhoid fever and peritonitis were overcome, but death occurred twenty-one days later of empyema and gangrene of the lungs due to tuberculosis.

12. Quick gives the details of a very interesting case of rupture of the bladder, in which recovery followed operation done two hundred and fifty-four hours after the injury. Though the abdomen was found filled with urine, peritonitis was absent.

14. Abscesses of the prostate which have neither penetrated the rectum nor bladder are best evacuated, in the opinion of Lusk, by way of the ischio-rectal fossa. The anatomy of the region is well illustrated.

The Lancet.
Dec. 29, 1906.

1. *Robson, A. W. M. *The Treatment of General Peritonitis.*
2. *Oliver, T. *Cyanosis, General and Local.*
3. Cameron, S. J. *Some Pathological Considerations of Extra-Uterine Pregnancy.*

1. By general peritonitis Robson means a diffuse peritonitis involving the whole cavity of the peritoneum not limited by adhesions; by a spreading peritonitis he means one in which there are no lymph barriers but in which the peritonitis has not as yet involved the whole cavity of the peritoneum. Formerly the only treatment was opium, starvation and hot poultices, and occasionally a case recovered; after this the purgative treatment was introduced with or without removal of the cause. Lawson Tait did a great service in pointing out the evils of morphine in these cases. Though useful in post-operative treatment in peritonitis after the cause has been removed, the routine use of purgatives can only be disastrous. Next came operative treatment advocated by the writer in 1888, at first limited to removal of the cause alone. Six cases are reported. The essentials of this treatment are: (1) Removal of the cause; (2) thorough drainage; (3) rapidity of operation; (4) avoidance of unnecessary handling or exposure; (5) prevention of shock; (6) saline solution by rectum; (7) rectal feeding; (8) avoidance of opium and repeated small doses of calomel after operation. More radical treatment, — evisceration, sponging of intestines, etc., — though theoretically perhaps good, practically meets with bad results. Ochsner of Chicago has returned to the older, more conservative treatment of spreading or general peritonitis with the idea of getting the disease localized for operation later. In all early cases he advises immediate operation, if efficient surgical help and nursing are at hand. Robson believes that delay for any reason is bad policy. Murphy of Chicago is an advocate of the Conservative operation for acute perforative peritonitis, avoiding handling of intestines, using large amounts of salines by rectum and pelvic drainage with the reclining posture.

2. Oliver gives an interesting discussion on cyanosis. He first considers that due to congenital heart disease; next cyanosis and blood findings in poisoning with acetanilid and other aniline derivatives; then cyanosis recently studied of intestinal origin, usually associated with gastro-intestinal disturbances, diarrhea, etc. The cause is supposed to be the presence of micro-organisms in the intestine of the nitrite forming group, together with an abnormal condition of the mucous membrane leading to the absorption of the nitrites into the blood. Experiments have shown that nitrites act as a reducing agent in the blood, forming methemoglobin. Several illustrative cases are given. He speaks of the prevalence of cyanosis in workers in aniline factories, and lastly considers local cyanosis or Raynaud's disease.

British Medical Journal.
Dec. 29, 1906.

1. Lawson, A. *Conditions of Eyesight Required for Military Service.*
2. Williams, C. H. *Visual Tests for Railway and Marine Service.*
3. Lawford, J. B., and Bull, C. S. *A Discussion on Rare Forms of Choroiditis.*
4. Wood, C. A. *Some Recent Cases of Death and Blindness from Wood Alcohol Poisoning.*
5. Burnham, G. H., Lawson, A., Oliver, C. A. *A Discussion on Sympathetic Ophthalmia.*
6. Fergus, A. F. *Sympathetic Degeneration.*
7. Byers, W. G. M. *A Case of Sympathetic Ophthalmia, which Followed a Mule's Operation, and Ended in Recovery.*
8. Roy, D. *Phlegmon of the Orbit, Simulating a Malignant Growth.*
9. Fergus, A. F. *Eyesight in Relation to Compensation.*
10. Würdemann, H. V. *Diaphanoscopy of the Eye.*
11. Killen, W. M. *Treatment of Unripe Cataract.*
12. Knapp, H. *Dependence of Accommodation and Motility on the Refraction of the Eye.*
13. Duane, A. *Tenotomy of Inferior Oblique and Consideration of the Conditions that May Call for the Operation.*
14. Jackson. *Accommodation after Middle Life.*
15. Ryerson, G. S. *Surgical Treatment of Trachoma.*
16. Fergus, A. F. *Binocular Vision.*
17. Howe, L. *On the Secondary Insertions of the Recti Muscles and their Clinical Importance.*
18. Osborne, A. B., Risley, S. D., Theobald, S., and Weeks, J. E. *A Discussion on Affections of the Lachrymal Passages.*

Münchener Medizinische Wochenschrift, No. 52.
Dec. 15, 1906.

1. Hofmann, C. *The Dosage and Mode of Administration in Lumbar Anesthesia.*
2. Erben, F. *The Proteolytic Ferment of Leucocytes and Autolysis of Normal Blood.*
3. Kraus, A. *The Technic of Staining for Spirochetes.*
4. Stoffel, A. *Pseudarthrosis of the Styloid Process of the Ulna.*
5. *Mennacher, T. *Perforation of the Duodenum by a Hair Pin.*
6. Mayer, M. *A Medico-Legal Case.*
7. Lücke. *Congenital Ankylosis of the Fingers.*
8. Jehle, L. *The Role Played by the Infection of Mines in Epidemics of Cerebrospinal Meningitis.*
9. Elkan. *The Graphic Representation of Physical Signs in the Lungs.*
10. Siegel, J. *What Do We Know about the Organism of Vaccinia?*

5. In Mennacher's case a hair pin swallowed four months previously caused a perforation of the duodenum. Death resulted from general peritonitis in spite of operation. The first violent symptoms were followed by a deceptive amelioration, which led to a postponement of the operation. This latent period in general peritonitis is seen also in perforation of duodenal ulcers; pulse and temperature may be normal and spasm and tenderness of the abdomen may be lacking.

Deutsche Medizinische Wochenschrift, No. 52.
Dec. 27, 1906.

1. Sittmann, G. *The Treatment of Anemia.*
2. *Albu, A. *The Early Diagnosis of Cancer of the Stomach.*
3. Vogel, K. *A Simple Contrivance to Supplement the Bardenheuer Extension Treatment of Fractures.*
4. Barth, E. *A New Tonsillotome.*
5. Martin, J. *The Technic of the Suction Treatment of Diseases of the Nose.*
6. *Klose, H. *Hemorrhagic Diathesis Complicating Scarlatina, with Remarks on the Use of Gelatin.* (Concluded.)

2. In the early diagnosis of cancer of the stomach, Albu lays much stress on a progressive loss of weight which occurs in spite of an abundant and suitable diet. This sign, when found in connection with such symptoms as progressive diminution or absence of hydrochloric

acid, or the presence of impaired motility, is sufficient to justify an exploratory laparotomy.

6. Hemorrhagic manifestations in scarlet fever may be due directly to the disease itself, and then occur either in the form of small petechiæ corresponding to the situation of the rash or as the hemorrhagic form with bleeding under the skin and from the mucous membranes. There is also a septicemic form due to infection with the streptococcus. Distinct from these varieties a hemorrhagic diathesis sometimes occurs as a complication of scarlatina. It may appear as a simple purpura, as hemorrhagic purpura, or as the fulminating type. Klose reports a remarkable case in which the hemorrhagic diathesis set in during the convalescence from scarlet fever, and after a duration of two years ended fatally. There were four distinct attacks, separated by intermissions during which the child was apparently well. Gelatin given subcutaneously had a very striking effect in that the hemorrhages ceased promptly and did not recur for long periods. He used Merck's sterilized gelatin, 20 cc. of the 10% solution. This is a thoroughly reliable preparation, comes ready for use and does not contain tetanus germs, which are not infrequently present in commercial gelatin. He refers to the marked reduction in the mortality of melena neonatorum since the introduction of this method. Gelatin may be effective when given by the mouth or rectum, but is much more so when administered subcutaneously.

The Value of Tuberculin in Diagnosis and Treatment (*Annales de Médecine et Chirurgie Infantiles*, Sept. 1, 1906). L. GIUENARD considers the practical value of tuberculin in diagnosis and treatment. Its value in animal diagnosis is undoubted. Why the great difference when tuberculin is applied to humans? The writer does not believe there should be this difference, and thinks it an exact method of diagnosis when carefully used in moderate dosage in early cases. In France the check which this remedy received shortly after Koch's discovery still keeps it from general usage. Especially in Germany tuberculin is used as a routine measure both for treatment and diagnosis. More than 10,000 observations have been published in Germany proving its value and harmlessness. The writer does not believe in the view held by many that some normal healthy individuals have a hypersensitiveness to tuberculin; in healthy subjects it will produce no results; if, when given according to prescribed rules, it causes a reaction, there must be tuberculosis somewhere. In the cases where there has been no reaction to known tuberculous processes, the writer thinks it is because the lesion is old, arrested or walled off. Such cases, he thinks, are very rare. As regards syphilis, dermatoses, and other conditions in which there is a positive tuberculin reaction, it is well to be quite sure that there is no tuberculosis before claiming that the test has given wrong results. Other substances, organic toxins, urinary toxins, etc., it is said, will give reactions, but these are in no way comparable to the real tuberculin reaction. Any rise in temperature above normal and above that the patient has had before and after injection constitutes a reaction. He gives the technique as recommended by Möller, Löwenstein and Ostrowsky, and as taught by Rumpf at Friedrichsheim. Koch's old tuberculin diluted with ¼% carbolic acid is used. One-half milligram is first given; if no reaction results, 2 mgm., then if no reaction, 5 mgm. For infants or weak adults 1–20 or 1–10 of a milligram. The patients should be in bed, the temperature taken every two hours. A positive reaction will show itself by elevation of temperature, malaise, headache, etc., and a less constant local reaction with exaggerated signs in the lungs. This local reaction, described by Turban in 1890, is of the greatest importance. Ostrowsky uses a slightly different method, injecting 2-10 mgm. of tuberculin every three to four days taking the temperature carefully and looking for any rise in temperature or local or constitutional signs after the second or third dose. This method avoids all violent reactions.

Acute Myelogenous Leukemia. While acute leukemia of the lymphatic type is not very uncommon, acute myelogenous leukemia is exceedingly rare, as shown by the fact that there are only 12 cases in the literature. MAGER and STERNBERG (*Wien. Klin. Woch.*, no. 49, 1906) report a case in a woman of thirty-four years. The duration was four weeks from the onset of the first symptoms, the course was that of an acute infectious disease with marked enlargement of the spleen and lymph nodes. The blood three days before death showed only anemia and a relative increase of polynuclear neutrophiles, without myelocytes. At the autopsy, however, the blood showed 20% of myelocytes and the typical appearances of myelogenous leukemia were present; it is worthy of note that in the lymph nodes and liver, giant cells were seen similar to those found in bone-marrow.

Chvostek's Facial Phenomenon in Enteroptosis. The facial phenomenon (twitching of the facial muscles on tapping the facial nerve in front of the ear) was considered by Chvostek to be diagnostic of tetany. Later observations have shown that it occurs also in neurasthenia, tuberculosis, gastro-intestinal and other affections. MAGER (*Wien. Klin. Woch.*, no. 51, 1906) reports its occurrence in 40 selected cases of enteroptosis. All of these patients suffered from marked constipation; an investigation of the stools showed the presence of marked fermentation in 22 out of 24. Under treatment directed to the intestinal condition, the facial phenomenon disappeared. Three cases of tetany all showed marked fermentation. Mager concludes that the facial phenomenon is due to auto-intoxication from the absorption of the products of abnormal fermentation in the intestine; for the production of tetany something else is necessary, possibly an insufficiency of the parathyroid glands. (*Cf.* The occurrence of tetany after operative removal of the parathyroids.)

Miscellany.

RESOLUTIONS ON THE RESIGNATION OF DR. WILLIAM L. RICHARDSON FROM THE BOSTON LYING-IN HOSPITAL.

AT the annual meeting of the Boston Lying-In Hospital Corporation held at the hospital, Jan. 16, 1907, the following vote was passed:

"*Voted*, That the members of the corporation regretfully accept the resignation of Dr. William L. Richardson as visiting physician of the hospital, and that the secretary be requested to spread upon the records that portion of the report of the Executive Committee which relates to his resignation and service, and to transmit a copy thereof to him as the unanimous expression of the corporation in testimony and appreciation of his faithful and devoted work for the hospital during the last thirty-four years."

In accordance with the above vote, the following extract from the report of the Executive Committee and of the Trustees was spread upon the records of the corporation. It reads as follows:

"It is with great regret that the committee is compelled to report the resignation of Dr. William L. Richardson as visiting physician of the hospital.

"It was chiefly through the initiative and the efforts of Dr. Richardson, in the years 1871 and 1872, that the hospital, whose work had been suspended for many years, was re-opened for the reception of lying-in patients. Recognizing the need of such an institution in this city, he vigorously and enthusiastically set about the task of re-establishing the Boston Lying-In Hospital to do the work which was so much needed for the community. He secured the co-operation of Dr. Henry Tuck and the two became the first physicians. The hospital began its work modestly in a single dwelling house with eighteen beds. Its success under the new auspices was assured from the start.

"The hospital building has been increased in

space more than fivefold; the number of house patients for the year has grown to nearly 800; the visiting physician has been seconded by an experienced and devoted staff, and by the first matron, who still remains efficiently at her post as superintendent, but reinforced with a large and zealous corps of assistants. The hospital has gone on from year to year not only constantly increasing the number of patients whom it has received to its wards, but extending to their homes its treatment of women in childbirth, making of its nurses a training school for fitting pupils for efficient service in the household, teaching students in obstetrics and endowing young physicians with skill as experts in practice, introducing the beneficence of antiseptics, and inaugurating skillful operations for the saving of life — all making the hospital not simply a refuge and home for the thousands of patients who have been directly treated, but by its training of men and women and by introducing scientific results and methods bringing comfort and security to the homes of all.

"To this work and to the attainment of these results, Dr. Richardson, associated for the earlier years with Dr. Tuck, later with Dr. Sinclair and Dr. Boardman, and during the past seventeen years as the sole visiting physician, has given untiringly his time, his thought and his skill, and has imbued and inspired with his spirit and zeal and knowledge his associates and assistants, who have ably and faithfully aided in all the work which has been accomplished.

"While the committee trusts that in other capacities Dr. Richardson will continue to labor and promote the interests and to extend still further the usefulness of the hospital, it now desires to express the deep and lasting obligation due to him, in the larger measure, for the great success which has been achieved in the thirty-four years of his leadership."

Wm. D. Sohier,
Secretary.

THE MEDICINE IN SHAKESPEARE.

The January issue of the *Johns Hopkins Bulletin* has, as a leading article, a paper by Dr. Meyer, instructor in anatomy at the university, on "Some Characteristics of the Medicine in Shakespeare." By a curious coincidence, the Journal gives in last week's and this week's issues a paper by Dr. Getchell, of Worcester, on the "Medical Knowledge of Shakespeare." For both writers there was evidently a real Shakespeare, and not a Bacon or any one else. Both articles will repay reading. Dr. Meyer's article is summed up in the following closing paragraphs:

"I am fully aware that there are those who have magnified Shakespeare's insight until they have claimed that he foresaw advancements in science which only the great scientists of the twentieth century have achieved. Such assertions, however, are interesting mainly as an index to a large part of the literature on this subject. It would be doing a great wrong to the truly learned physicians and surgeons of the sixteenth century and to their illustrious predecessors, to claim that the characteristics of the medicine of the plays of Shakespeare are those of the medicine of Woodall, Riolan, Botal, Harvey, Caius, Banester, Linacre, Paré and many others. There are, it is true, some points of similarity, yet little can be found in the medicine of the dramas of Shakespeare indicative of the learning of these men. It is the popular and the general, rather than the special and minute, that is found in Shakespeare. The picture we obtain is, in the main, that which could easily be obtained from the life of that time by a layman of *such extraordinary genius* as Shakespeare's. The wonderfully accurate descriptions of death and old age are eloquent testimonials of his powers of observation, expression and portrayal. It would be useless to try to find parallels to them in the professional treatises of that time or of any other time. Be their professional attainments what they might, lacking Shakespeare's genius, physicians were, and must remain, unable to write as wrote the great master of English. To be sure, there are certain internal evidences tending to show that the medicine of the plays of Shakespeare is, in some things at least, fully abreast of that of the professional treatises of the times. But they are too few and inadequate to characterize it as a medicine based on clinical experience and anatomical knowledge. In short, the medicine of the plays of Shakespeare is Hippocratic medicine modified by Galenism, with a touch of Paracelsus. These elements are all represented in the best treatises on medicine of the sixteenth century. The characteristics of the medicine of Shakespeare are, in a manner, those of the medicine of the best physicians contemporary with him. It is not, however, a purposeful medicine based on medical training and clinical experience, but incidental, the product of a world genius, and, therefore, a greater tribute to his enduring fame."

Correspondence.

GIFT TO LAWRENCE GENERAL HOSPITAL.

Lawrence, Mass., Jan. 17, 1907.

Mr. Editor: This from the Boston Medical and Surgical Journal of Jan. 3 is incorrect as to name:

"Gift to the Lawrence, Mass., Hospital. — As the result of a decision by Justice Morton of the Supreme Court, the Lawrence City Hospital received $25,000 under the will of the late Helen G. Coburn, of Boston. A question as to the disposition of the money arose from the fact that the name of the hospital was incorrectly stated in the will; it appeared, however, on investigation that there was no doubt which institution was intended to be the beneficiary."

Mrs. Coburn's will incorrectly named the Lawrence City Hospital as above; there is no such institution. A "friendly suit" on the part of the Lawrence General Hospital became necessary to enable the executors to make payment with entire safety to the Lawrence General Hospital, which was most certainly intended. Judge Morton issued a decree to that effect. This illustrates the wisdom of precision in a legator. Our hospital is not the Lawrence, Mass., Hospital, nor the Lawrence City Hospital, as in your item, but the "Lawrence General Hospital."

Truly yours,
O. G. Carleton, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 12, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,679	476	Quincy	13	2
Chicago	699	198	Waltham	7	1
Philadelphia	646	150	Gloucester	6	1
St. Louis	—	—	Pittsfield	—	—
Baltimore	245	57	Brookline	2	2
Cleveland	—	—	North Adams	5	2
Buffalo	—	—	Chicopee	7	4
Pittsburg	—	—	Northampton	11	1
Cincinnati	—	—	Medford	11	—
Milwaukee	—	—	Beverly	4	—
Washington	—	—	Hyde Park	3	1
Providence	85	24	Newburyport	—	—
Boston	266	55	Leominster	8	3
Worcester	40	6	Melrose	3	—
Fall River	31	13	Woburn	9	—
Cambridge	32	9	Marlborough	3	0
Lowell	43	6	Westfield	8	2
Lynn	27	4	Peabody	—	—
New Bedford	25	8	Revere	6	3
Springfield	22	5	Clinton	4	1
Lawrence	34	10	Attleboro	4	1
Somerville	14	1	Adams	7	2
Holyoke	22	10	Gardner	—	—
Brockton	17	—	Milford	5	—
Malden	14	4	Weymouth	3	—
Salem	17	3	Framingham	5	—
Chelsea	4	1	Watertown	2	1
Haverhill	11	2	Plymouth	—	—
Newton	7	1	Southbridge	7	1
Fitchburg	8	3	Wakefield	—	—
Taunton	—	—	Webster	—	—
Everett	9	3			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JAN. 19, 1907.

W. H. BLOCK, acting assistant surgeon. Resignation accepted to take effect from Jan. 13, 1907.

C. H. DELANCY, passed assistant surgeon. Detached from the "Hancock" and granted sick leave for three months.

C. P. BAGG, surgeon. Detached from the Naval Station, Guam, L. I., and ordered home to wait orders.

G. G. HART, acting assistant surgeon. Detached from the Naval Training Station, San Francisco, Cal., and ordered to the "Albatross."

F. E. MCCULLOUGH, surgeon. Detached from the "Albatross," and ordered to the Naval Station, Guam, L. I., sailing from San Francisco, Cal., Feb. 5.

O. J. MINK, assistant surgeon. Ordered to the Naval Medical School, Washington, D. C.

ORDERS ISSUED BY COMMANDER-IN-CHIEF OF ASIATIC FLEET.

J. C. THOMPSON, surgeon. Detached from the "Cincinnati" and ordered to the Naval Station, Olongapo, P. I.

A. E. PECK, passed assistant surgeon. Detached from the "Concord," and ordered to the Naval Station, Olongapo, P. I.

F. E. SELLERS, assistant surgeon. Detached from the "Mohican," and ordered to the "Cincinnati."

R. E. STOOPS, assistant surgeon. Detached from the Naval Station, Olongapo, P. I., and ordered to the "Concord."

C. T. HIBBETT, medical inspector. Detached from the "Franklin" and ordered to the Naval Rendezvous, St. Louis, Mo.

C. E. RIGGS, surgeon. Detached from the "Pensacola" and ordered to duty with Marine Legation Guard, Pekin, China, sailing from San Francisco, Cal., Feb. 21.

C. J. DECKER, surgeon. Ordered to duty on board the "Franklin."

J. S. TAYLOR, passed assistant surgeon. Detached from duty with Legation Guard, Pekin, China, and ordered home to wait orders.

F. G. ABEKIN, passed assistant surgeon. Detached from the Naval Rendezvous, St. Louis, Mo., and ordered to the Naval Training Station, San Francisco, Cal.

R. J. STRAETON, J. C. DUNIGG, assistant surgeons. Appointed Assistant Surgeons, with rank of (lieutenant, junior grade) from Dec. 20, 1906.

APPOINTMENTS.

LEONARD WORCESTER WILLIAMS, PH.D., has been appointed instructor in comparative anatomy at the Harvard Medical School for the remainder of the academic year 1906-7.

CARNEY HOSPITAL.

DR. GEORGE S. DERBY, ophthalmic surgeon.

DR. EDWARD K. ELLIS, assistant ophthalmic surgeon.

RESIGNATION.

DR. W. J. DALY as ophthalmic surgeon.

PRIZE FOR THE BEST ESSAY ON THE ETIOLOGY OF EPILEPSY.— Dr. W. P. Spratling announces a prize of $500, offered by the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, for the best essay on the etiology of epilepsy. All essays submitted must be in English, written in a clear, legible hand or on the typewriter, on one side of the paper only and they must not contain more than 15,000 words. Essays must be in the possession of Dr. W. P. Spratling, at Sonyea, N. Y., not later than Sept. 1, 1907. The name of the person submitting the essay must not appear on the same, but be put in a sealed envelope on which is written a motto, and which motto must also appear at the top of the first page of the essay. All essays received will be placed in the hands of three physicians to determine their merit. Two of these physicians will be members of this Association; the third a member of the American Neurological Association. Announcement of the award will be made at the November, 1907, meeting of the Association and the prize becomes the property of the Association. The Association will not feel bound to award the prize should no essay submitted be deemed of sufficient value to merit it. Original research work into the etiology of epilepsy will be a leading factor in fixing the award.

RECENT DEATH.

DR. HENRY KOST, of Fort Washington, New York City, died on Jan. 12, in the seventy-sixth year of his age. He was a native of Hildburghausen, Germany, and studied medicine at both Jena and Würzburg. After taking his degree at the latter university, in 1853, he attended a post-graduate course at Vienna. In 1855 he accepted a commission as assistant surgeon, with the rank of lieutenant, in the British-German Legion, and served throughout the Crimean War. Later he held the position of resident physician at the German Hospital in Dalton, England. In 1868 he came to New York, where he practised for thirty-five years.

BOOKS AND PAMPHLETS RECEIVED.

The Toxins and Venoms and Their Antibodies. By Em. Pozzi-Escot. Authorized translation by Alfred I. Cohn, Phar.D. London: Chapman & Hall, Ltd. New York: John Wiley & Sons. 1906.

The Practice of Obstetrics. Designed for the Use of Students and Practitioners of Medicine. By J. Clifton Edgar, M.D. Third edition, revised. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Tropical Medicine, with Special Reference to the West Indies, Central America, Hawaii and the Philippines, including a General Consideration of Tropical Hygiene. By Thomas W. Jackson, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Requirements of the Mosquito Doctrine. Yellow Fever in New Orleans in 1905. By Sidney L. Théard, A.M., M.D. Reprint.

Bulletin of the Massachusetts Institute of Technology. Boston, December, 1906.

Hygromedry. By H. E. Wetherill. Fourth edition revised, enlarged. Illustrated. Philadelphia.

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The Charity Organization Society of the City of New York, Twenty-fourth Annual Report from Oct. 1, 1905, to Sept. 30, 1906, inclusive.

Original Articles.

REPORT ON THE TRYPSIN TREATMENT OF CANCER.

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The attractive theory of Dr. John Beard as to the action of trypsin on cancer cells and the widespread interest given it by popular literature led me last September to institute a series of observations in order to form, if possible, an independent judgment on the efficacy of the treatment. Although I have applied the treatment since then to practically all inoperable cancer cases which have been under my care, I shall report in this article only four cases, as in them the treatment was most systematically carried out, and the results are most typical and instructive. The four cases which I shall describe are recurrent cancer of the breast, which had been under my observation since their first application for treatment. Cases I, II, and IV were operated on by me; Case III was operated on by Dr. W. H. Baker.

The cases chosen seemed to be especially valuable to test the efficacy of this remedy, first, because all that was possible to be done in the way of surgery had been done; secondly, because being in comparatively good general health they were not beyond the point where nature could assist artificial remedies; thirdly, because the carcinomatous growths appearing in small nodules immediately beneath the skin offered an excellent opportunity to study in gross the various changes which the injection of trypsin might cause in their size and consistency; fourthly, because on account of the convenient and superficial location of these nodules it might be possible at any time to excise them under cocaine to study their changes microscopically.

With regard to technique, I have used the Injectio Trypsini of Fairchild, which is put up sterilized in glass bulbs that hold 20 mm. of a glycerin solution. I have usually begun with 10 mm. of the undiluted trypsin solution, and after two or three treatments increased this to 40 mm. three times each week. This dosage may be increased to 60 mm. or more, if the injections be given in divided doses, and in different areas. After continued treatment, the tissues acquire a certain amount of tolerance, and the dosage can be much increased. The amount of the injection, and the frequency of treatment must be determined by the amount and severity of the local or constitutional reaction.

After trying various needles, I have adopted a large antitoxin needle with a metal barrel and piston which can be sterilized by boiling. The barrel is provided with a canula through which the glycerin solution can be readily drawn from the narrow neck of the glass bulbs. The usual antiseptic precautions are observed, while local anesthesia necessary for the introduction of the large needle is most conveniently produced by the application of ice for two or three minutes.

The severe constitutional reaction which has been mentioned by other writers, I have noticed only once, notwithstanding the unusually large injections that I have given. The only case where it was observed was the first injection of 10 mm. into a rapidly proliferating squamous-cell carcinoma of the cervix uteri. This injection was followed in two hours by a serious state of collapse, which for a while was alarming. This reaction resembled in general character that which sometimes follows the injection of Coley's serum, but was considerably more severe.

A certain amount of local reaction is more or less constant. This consists of a dense, hard infiltration occurring especially after large doses. There is a red tender swelling, which does not advance to suppuration, and which completely disappears in a few days after cessation of treatment. This swelling is probably due to the great infiltration of small round cells between the fibres of the subcutaneous connective tissue, as is shown in one of the microscopical sections described below.

The claims made by Dr. McKenzie and Dr. W. J. Morton and other writers on this subject, that carcinomatous masses treated with trypsin are made to shrink or diminish in size, are to a certain extent supported by my observations. This seems to be the case when isolated nodules are treated by direct injection. Although a marked and even surprising result can thus be obtained, no particular influence seems to be exerted on neighboring nodules, nor does such a treatment prevent later appearance of a carcinomatous nodule in close proximity to a nodule previously treated and aborted.

The result of injecting trypsin into carcinomatous masses where there is a certain amount of degeneration or where the character of the process is very cellular is most striking in effect. One would naturally expect that in such cases the enzymotic character of the extract would be most apparent. Carcinomatous tissue of this kind rapidly dissolves without sepsis, the process resembling the action of enzymol on sloughing ulcers, where the necrotic tissue is digested and dissolved, and the normal tissue is unaffected.

In one of my cases (Case III) there has been an undoubted relief given to pain. This result is, however, not a constant one, in deep seated cancer, as has been repeatedly demonstrated where I have tried it in cases of advanced carcinoma of the cervix uteri.

I have noticed no special effect on the nutrition of the patient by the use of trypsin alone. The effect, however, of the internal administration of Holadin, a combination of the pancreatic ferments, is unquestionably attended with an increase of appetite and weight, and a general improvement in the well-being of the patient, in cases that are not too far advanced. This result is so evident that I make it a routine to give Holadin at once in all cases of carcinoma.

The microscopical result which I obtained (Case I) from the excision of a nodule which had been apparently cured by the local injection of

trypsin is strikingly similar to the report made by Dr. H. T. Brooks of the specimen sent him by Dr. Morton, and described in the New York *Medical Record* of Dec. 8, 1906. Dr. Morton's conclusions that trypsin, when coming into actual contact with the living cancer cells, destroys them, and encourages a dense connective tissue formation in the particular area treated must, however, be modified in my own case. Here the original tumor was a scirrhous cancer, and showed a marked tendency to dense connective tissue formation, both in the tumor and in some portions of the otherwise unaffected breast tissue. I am inclined to ascribe the greater success which I have had in Case I to the scirrhous nature of the original growth, partly because the process is slower than in the more cellular form of cancer and partly because the scirrhous variety is mechanically more favorable for the action of trypsin. As the dense connective tissue fibers are unaffected there is not the same breaking down and solution of tissue that is seen in medullary growths.

My experience with the trypsin treatment practically substantiates that of other writers. There has been nothing in my results to guarantee an expectation as to its ability ever to cure a deep-seated cancer; Case I and Case IV lead me to think that the progress of the disease may in favorable instances be retarded. There is no positive evidence in my experience to show that the local effect of direct injections of trypsin into carcinomatous masses exerts a greater destructive influence than certain other remedies that have been used in times past. I can only say that I have not yet decided that the treatment is entirely without benefit to the patient, and for that reason I consider it not only justifiable, but due the patients under one's care to employ it in all inoperable cases, with the hope that greater experience and improvement in technique may possibly prove its greater usefulness.

CASE I. Mrs. T., age forty-six. Operation April 27, 1905. Amputation of the right breast. Removal of both pectorals, and dissection of the axilla. The specimen consisted of a tumor in the outer border of the right breast, about the size of an English walnut. There were no metastases. Microscopical examination showed the tumor to be a scirrhous carcinoma. On May 24, 1906, a small nodule in the scar was removed and showed microscopically that it was a recurrence of the original condition. Several months after another small nodule, perfectly characteristic of recurrent carcinoma, appeared in another part of the breast. It was then decided to try the trypsin treatment. On Sept. 18, 5 mm. of typsin solution were injected into the small nodule above mentioned. Several injections were then made at intervals of two or three days, and though at first there was some inflammatory reaction, on Oct. 8, the original nodule into which the injections had been placed was flatter and smaller, and the skin over it appeared whiter and thicker than the surrounding skin. This appearance has continued up to the present date without any enlargement or increase in that particular nodule. On Oct. 8, another small carcinomatous mass was felt at considerable distance from the first one. Several injections of trypsin into this nodule caused it to diminish. Treatments continued two or three times a week, and the amount given was increased to 40 mm. Other carcinomatous nodes began to appear one by one, but did not grow rapidly. Treatment of these later nodules has shown a similar effect to the first two. On Nov. 5, the amount of trypsin injected was increased to 60 mm., but this was followed by so marked and painful reaction, which consisted of a swelling and redness of the subcutaneous tissues, that the dosage was again reduced to 40 mm. The inflammatory swelling would always subside in a few days, there being no abscess formation nor serious inflammation, and did not appear to be in the nature of an infection. On Dec. 5, Holadin was prescribed, to be given in capsules by mouth. Six capsules were given daily, and have been continued up to the present time. This internal treatment had an immediate beneficial effect on the general nutrition of the patient. Her appetite was markedly increase, and her general sense of well-being improved. Some weight has been gained, and the patient's color is also improved. On Jan. 11, the small nodule first treated, which has been described as having apparently been aborted and become flatter and more cicatricial, was excised under cocaine. At the same time another small nodule characteristically carcinomatous to the feel, which had recently appeared near the first nodule, and into which 20 mm. of trypsin had three days before been injected, was also excised. The first nodule, namely, the one treated on Sept. 18, and apparently aborted, showed under the microscope the following appearance: The tissue immediately beneath the epithelium was very densely fibrous. This tissue became less dense and more of the nature of ordinary connective tissue in the deeper parts of the specimen. In the lowest portions there was considerable round cell infiltration, *but no appearance of cancer cells.*

The second nodule, namely, that into which trypsin had been injected three days before, showed a connective tissue markedly infiltrated with small round cells. In the lower portion were a few gland elements, and scattered in the lymph spaces small collections of carcinomatous cells. These cells were large and faint, and stained poorly with hematoxylin, and were apparently in a state of degeneration, showing a marked contrast to the connective tissue cells and small round cells in the immediate neighborhood. A comparison with the cancer cells of the original tumor showed them to be in an apparent state of degeneration. From a study of these two specimens one is inclined to believe that the statement of Dr. Beard and others who have exploited the trypsin treatment, is true, that the trypsin ferment exerts a digestive action on the cancer cells, leaving unaffected the neighboring normal somatic cells of the individual.

The present condition of this patient is as follows: She has not lost weight, is in fairly good health and strength, and is able to perform her ordinary household duties. She has a good appetite, a good digestion, and sleeps well. The carcinomatous process in her breast is at present showing no progression. Nodules which were apparent a month or six weeks ago have either flattened out or disappeared altogether. My previous experience leads me to believe, however, that though these have apparently been aborted, others will probably appear in time in their immediate vicinity. I am now giving 80 mm. of trypsin in divided injections three times each week.

CASE II. Mrs. J., age fifty-one. Operation Feb. 27, 1906. Amputation of left breast. Dissection of axilla. Removal of both pectorals. The microscopical examination showed medullary carcinoma.

This case was a neglected one having extended over

four years without operative treatment. The process was very extensive, both in the breast and throughout the axilla, and the prognosis at the time I operated was as bad as possible. Convalescence was attended with sepsis at one end of the wound. The patient presented herself again in September, showing carcinomatous infiltration with numerous small nodules near the lower end of the scar. Trypsin treatment was begun on Sept. 17, 1906, and was directed especially to the largest nodule, which was dark purple in color, and about the size of a walnut. Beginning with 5 mm. the dose was soon increased to 40 mm. all the injections being made at first directly into the prominent nodule. After five treatments the following entry was made on the record: Nodular tumor is now soft and much flatter. There is marked fluctuation, which beneath the skin appears to be a dark bloody fluid. There is no evidence of an abscess. The tense hardness which characterized it before treatment has disappeared. Other portions of the infiltrated area are soft and edematous.

Soon after this, the first nodular mass broke down and discharged a murky, bloody fluid. After the discharge of this fluid the nodular mass dried up and became hard and much flatter than when first treated. On Oct. 12, there seemed to be a slight general improvement in the infiltrated mass which had received injections three times each week. The patient, who lived at a considerable distance from my office, was now obliged to give up the treatment. A letter from her written at my request on Jan. 9, 1907, gave a discouraging report. After ceasing the treatment, the condition of the breast evidently became rapidly worse, and the patient has now given up hope. During the treatment the local condition showed a slight amount of improvement, and the rapid growth of the cancer which followed suggests the possibility that the treatment retarded the process to some extent. The change which could be exerted in the isolated nodule would have encouraged me to continue the injections if it had been possible.

Case III. Mrs. K., age sixty-eight. Operation April 19, 1906. Operated on by Jackson's method for amputation of the breast and dissection of the axilla. Microscopical examination of the specimen showed adeno-carcinoma.

This was a case of advanced cancer which for four years before applying to me had received various forms of treatment, including partial enucleation, x-ray, and electricity. The growth was extensive and reappeared in a few months after operation. There was a deep hard infiltration beneath the quadrangular flap of skin, which is left by Jackson's operation. Systematic treatments were begun on Sept. 26, 1906, and have continued two or three times a week, sometimes at longer intervals, ever since. The dose has varied from 20 to 60 mm.

Occasionally rather severe local reaction has caused the treatment to be interrupted sometimes a week at a time. There has been a slow but sure progress of the disease in this case, the local effect of the trypsin being apparently less than in the other cases.

The important feature of this case is that at first there was severe sharp pain in the field of the disease which had lasted since the first appearance of recurrence. This pain after a few injections entirely disappeared and has not returned. Holadin has been systematically given to this patient, but her general constitutional condition has gradually but surely deteriorated, and she is now able to come for treatment not oftener than once a week. There are some signs of possible metastases, shown chiefly by an extremely severe backache, which nothing appears to alleviate. There is nothing to show in this case that the trypsin treatment has even retarded the progress of the disease.

This case, together with Case II, were extremely advanced, and were probably beyond hope of possible benefit.

Case IV. Mrs. F., age sixty. Operation Dec. 22, 1905. Amputation of breast. Removal of both pectorals. Dissection of axilla. Microscopical examination showed carcinoma simplex. During the summer of 1906, numerous small recurrent nodules appeared, and being fairly well localized, a second operation was done, Oct. 2, 1906, in which all the small nodules which could be felt were removed. As soon as the patient recovered from this second operation and was able to visit my office, a systematic treatment of trypsin was begun and has been carried out with comparative regularity until the present date. After four months of treatment there has been no recurrence which can be felt by careful palpation. Holadin has been given with good results with regard to appetite and general nutrition. The patient is fairly well and suffers only from a certain amount of swelling of the arm, due to the extensive dissection which was carried out during the first operation. Nothing positive can be concluded with regard to this case, excepting that the nonappearance of any recurrence following the second palliative operation which was for an extensive recurrence, is to a certain degree encouraging, considering the lapse of time.

A number of other cases have been treated by me, especially cases of squamous cell carcinoma of the cervix uteri, but the treatment has either been too short or too unsystematic to give out as yet any definite results. A case of cancer of the tongue with extensive ulcerative process on the neck, with rapidly growing and necrosing cancerous masses about the edge, was treated with injections of trypsin. The rapid and extensive dissolution of these nodules was so marked that the treatment was abandoned on account of the great increase of ulcerated area caused thereby.

Conclusions from these cases:

First, a discreet cancerous node systematically attacked by injections of trypsin shrinks and becomes hard and fibrous or disappears.

Second, neighboring nodes are little if at all affected, and are probably influenced only when the trypsin comes into actual contact with the growing cells.

Third, the treatment of a given node causing it to shrink or disappear does not prevent the appearance later of another node in immediate proximity to it.

Fourth, there is no evidence in these cases to show that trypsin affects cancer cells by circulating in the blood, or that it affects them in any way excepting by direct contact.

Fifth, the internal administration of the various ferments of the pancreas is of benefit to cachectic patients; but from my experience there is nothing to show that this benefit is due to anything else than the assistance given to the intestinal digestive secretions of the individual patient.

Sixth, the direct action of trypsin on growing cancer cells as shown clinically and microscopically, is sufficient warrant to continue the treatment in inoperable cases, especially in view of the fact that there are apparently no serious results that can occur from its use.

INSTRUCTION IN THE PHYSIOLOGY AND HYGIENE OF SEX: ITS PRACTICABILITY AS DEMONSTRATED IN SEVERAL PUBLIC SCHOOLS.*

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FOREWORD.

THE following was part of a symposium on Public School Instruction in the Physiology and Hygiene of Sex. It was supplemented by physicians' statistics as to the prevalence of social diseases and their results among the unprotected;[1] by the statements of educators that conditions demand study of the problem and, if possible, a solution, since homes do not perform their plain duty in this or in some other lines already undertaken in the schools; also by the testimony of several teachers as to the need of sex instruction for both their girls and their boys. It is undoubtedly true that a very large amount of youthful vice contributing to the spread of social diseases arises from ignorance and misinformation concerning problems of sex and the sequelæ of immorality.

Mr. President, Members and Guests of the Society:

In entering on any endeavor, particularly if of great importance and of great difficulty, it is wisdom to study the experience of others who have made similar attempts.

It is wise of us to examine what teachers in public schools have already tried in order as a scientific body to know the facts, and as social workers to learn the paths of least resistance, perhaps to take advantage of paths already "blazed" if they lead to desired results.

During the last two years I have searched 20 cities for the teaching of hygiene including the physiology and hygiene of sex. The findings will be outlined, but first certain related facts should be presented.

MEDICAL LECTURERS AND GYMNASIUM DIRECTORS.

One is that neither textbooks nor teachers of physiology and hygiene as such allude to this subject. Three girls' classes in 32 high schools visited had medical women give from 1 to 3 talks on menstruation, pregnancy, childbirth and after-care, and care of the new born; 2 discussed also social diseases and the dangers of alcoholic beverages. I found no corresponding talks in boys' classes.

In high school physical training, where the director of the girls' gymnasium is a woman, 3 directors explained menstruation and the care of the health at that time. In 2 boys' gymnasia medical men gave talks on personal cleanliness, the avoidance of alcohol, tobacco and self-abuse.

In these 5 schools the authorities continued the medical talks because it was the best they could do; but their criticisms were that the instruction was not definite, or not clear, or not enough; or was not always understood, either because of professional phraseology or because of pupils' ignorance of the whole subject which could not be removed in so few lectures.

In 2 schools the subjects had been discussed by physicians in mothers' meetings, home instruction being urged. The earnest interest of some hearers, the prejudices and unfitness of others were brought out.

GENERAL TEACHERS' ATTITUDE.

A second related fact is that the very great majority of 90 general teachers whom I interviewed, in all grades, but especially in grammar, expressed anxiety as to the need of such instruction but did not believe it wise to undertake it personally, although 85 believed qualified teachers of nature study could do it. Three felt sure they could do it through nature study, but were forbidden by principals.

Five had tried giving pamphlets to certain boys and girls, or had talked with them privately with occasional good results; but in one of these schools, although the instructor had acted on the advice of 2 well-known physicians, trouble with parents and principal resulted; and the superintendent instructed her "not to take any notice of such things. It only stirred them up and made bad matters worse." She was obliged to close her eyes to the circulation of obscene pictures, notes, literature, and to even worse actions, except as the usual routine in school required obedience and attention. Five believed it impossible for schools to undertake because of children's talk or actions and of parents' opposition.

NORMAL SCHOOLS' NEGLECT.

A third related fact is that among all these 90 general teachers and among 52 more special teachers I found no knowledge of the scientific facts concerning social diseases, and but crude understanding of results of personal impurity among children; neither had the very great majority received any instruction in the physiology and hygiene of sex for their personal advantage. There was one exception to a part of this statement, — a teacher to whom a medical member of the school committee had loaned Dr. Morrow's "Social Diseases and Marriage."

This shows that most normal schools are seriously lacking in preparing caretakers of youth. In one city whose "schools have an excellent reputation" high school physiology and hygiene (very imperfectly taught) is elective. Its graduates enter the normal school for professional training only, afterwards filling the majority of positions in the city schools. I asked a normal class of 27 how many elected high school physiology and hygiene. Fifteen raised their hands.

PUPILS UNDER TEN.

Turning now to what teachers are doing, we find a large proportion in kindergarten, primary and grammar grades are familiarizing children

* An address given before the American Society of Sanitary and Moral Prophylaxis at the Academy of Medicine, New York, Dec. 13, 1906.

[1] *Cf.* Social Diseases and Marriage. Prince A. Morrow, M.D., Lea Brothers & Co. Syphilis of the Innocent. L. Duncan Bulkley, M.D., Bailey & Fairchild.

with germination of seeds and hatching of eggs; with sex in flowers, insects, etc., self pollination, cross pollination, heredity, provision by parents for growing seeds and hatching eggs. They teach nothing of human sex. Perhaps 2 per cent of teachers go as far in this plant and animal origin of life as pupils under ten can understand. Ninety-eight per cent have not had sufficient preparation in biology and physiology to do so.

PUPILS OVER TEN.

I found none of these general teachers who went further in teaching the physiology and hygiene of sex with children over ten. But this is not the age to stop. The coming years are most critical.

Assuming that all general teachers can be trained to handle this subject well with younger children since a considerable number can do so, then our question is: How can we wisely teach children over ten whose minds are usually prejudiced with ideas of mystery and shame if not of actual evil? In finding the answer there is significance in the fact that these *85 general teachers did not believe it possible for them to do it, but believed special teachers of nature study could.* It is equally significant that in these 20 cities the *only attempts were by 9 specially prepared in biology and by 2 in domestic science.* These two, in high schools, in their 2 weeks' teaching care of the sick at home discussed contagious diseases, enumerating among them syphilis and gonorrhea, indicating briefly their frequent origin in the social evil, their free carriage among the general public, their results in blindness, degeneracy, childlessness, invalidism; the need of their control like other contagions by boards of health and by insisting on the physical integrity of both sexes before marriage. They did not teach the physiology of sex, and only this amount of the hygiene; and they taught something of the care and feeding of infants. If all teachers of domestic science included this much, it would still be very incomplete and would reach only the comparatively few high school girls who elect the study.

Of the biologists two were teaching children from ten to twelve, *i.e.*, the two upper grammar grades. In one course the teacher had a "continued story" through the two years — the "story of the world we live in." It began with exhibiting some attractive chemical experiments illustrating gases, vapors, condensations into solids, cooling, some of the properties of water, light, heat, etc. This year's work was then continued from the simplest forms of plant life to the complex with the frequently repeated text: "The two objects of every living thing are to perfect itself and to reproduce itself." For every plant studied this year and every animal studied the following year these objects, perfection and reproduction, were the lines of study.

For cell life yeast cells (with microscopes) were used, and the children drew the cell reproduction seen. They saw and drew (with the teacher's help) *spirogyra* and reproduction by conjugation of like cells, *vaucheria* and conjugation of unlike cells, all leading to the terms "mother plant" and "father plant" continued through the two years with allied terms in plant and animal "families." Through higher plant forms, spores, seeds, flowers, pollenation by natural and artificial methods, these themes were traced by the children themselves under the teacher's guidance.

The study of various animals along these lines in the eighth grade utilized insects, birds, white mice, tadpoles, kept in vivaria, cages and aquaria, thus showing various forms of development daily. They visited a government fish hatchery in the neighborhood and learned some of the details of artificial propagation, which you will remember may include manual expression of the eggs and of the sperm over the eggs.

In answer to the question, "Do you think you have taught anything of clean living?" the reply came emphatically, "I am sure I have. In one class there were two boys two or three years older than the others. They were precocious and unclean minded. It could be seen in their faces at the beginning. I had no private talk with them, but at certain points I took special pains to have them understand. Before the course was over there was a complete mental revolution, and moral, too, I know from their manner. They are clean, good boys now and twice as bright."

She utilized the fall of a beautiful elm near the school for a lesson, recalling the many years that rain and sunshine, the seasons, soil and dews had helped the little seed to grow into this graceful tree with beautiful leaves, where the birds nested and sang, and which the children loved, "just as you are growing up and we are trying to help you become good men and women. But if in your thoughts or in your life there is hidden somewhere some wrong habit that you would not like to have your mother know nor me — just like the rotten wood in the heart of this tree — then the storms that come in your life, too, will make you fail, and you will grieve all your friends, and all our work will be wasted." The children found this a very impressive demonstration of the value of "goodness all through."

In another school the pupils were shown yeast cells and how they multiply. They saw crickets and grasshoppers deposit eggs, hatch, develop and mate. They followed the life cycle of some moths. They had an observation hive of bees. They saw roe in the fish and ovaries of hens *in situ;* frogs spawning and pigeons laying eggs. They were shown various stages of the embryo chick and it was simply explained. The children were deeply interested and perfectly unembarrassed throughout; and it is to be remembered that reproduction was not given more than its share of attention among the other life phenomena.

These courses were fuller and more definite than in the younger grades concerning details of the origin of life, heredity, physical integrity; but the question is: Do they teach all that boys and girls of twelve to thirteen should know, *tens of thousands of whom leave school now?* Is this the best we can do to guard them from social vice?

BIOLOGY FOR PUPILS THIRTEEN TO FIFTEEN.

Some of the 7 other biologists in high schools help to answer the question. Two simply taught academic biology which necessitates teaching reproduction below man, problems in heredity, environment, modification of species, etc. No special effort was made to correlate with human problems. Four others suggested human parallels throughout but did not discuss the hygiene of sex nor social diseases.

One course touched the subject much more frankly than any other. This was in a small city where the eighth grammar grade had been transferred to the large new high school building that was a gift to the city.

The intellectual starvation of our upper grammar grades seems to me appalling. A few leading educators are concentrating on this problem. It was a delight to see how these children reacted to special teachers, laboratories, gymnasia, and greater responsibilities. It is *just at these ages that their instincts are crying out for knowledge; and our citizenship is suffering for giving them only infant instruction.*

This biologist had boys and girls from thirteen to fifteen in zoölogy. They used microscopes, did their own collecting, kept notes and drawings, and wrote periodic *résumés*. The essential functions of each animal were studied, — digestive, circulatory, respiratory, nervous and reproductive. I have examined their note books in detail and their *résumés* on "Reproduction in Animals," each beginning: "Reproduction is as essential as growth," or "almost as essential" — they were not quite unanimous.

Beginning with protozoa they saw and drew the division of ameba and other unicellular animals; the conjugation of cells before division, tracing variations in multicellular animals until the hydra with spermary and ovary illustrated "division of labor" among cells, and both sexual and asexual reproduction. They traced the evolution of sex through celenterates, echinoderms, vermes; its various modifications of hermaphrodism with self fertilization and cross fertilization, and of egg and sperm borne by different individuals until in *mollusca* the sex of individuals becomes definite, reversions rarely occurring.

They traced the growth of young animals in cup-shaped parents until they escape out of the top of the cup or sac, and the curious ways of laying eggs and providing for their care, until in *arthropoda* they found in the female brood pouches for fertilized eggs or embryo, and other sex characteristics, growing more distinctive through spiders, butterflies, grasshoppers, ants, bees, flies, until in vertebrates they followed the evolution of the reproductive system through fishes, amphibians, reptiles and birds, to mammals, of which they studied the rabbit, as they had a family of rabbits in their laboratory.

It was not intended to have them memorize details, but rather to learn the principles underlying heredity and reproduction of life, *at the same time learning the principles of growth through respiration, nutrition, elimination, all co-ordinated by the nervous system.* It was more fascinating to these boys and girls than any tale of fiction. They frequently begged for the privilege of working overtime or after school. Not one wished to shirk.

A "SEX TALK."

After finishing *mammalia*, but several weeks before the end of the course, the instructor gave them a "sex talk." Mammals were compared with lower orders and then with man. The following are some of the topics: significance and value of the home; dangers from abuse of reproductive function; bacterial diseases peculiar to immoral living; their harm to the innocent, the family, the country; the dangers of alcohol in this connection; statistics of degeneracy, blindness, nervous diseases, invalidism, heredity.

Some school people believe that ideas of heredity do not appeal to these ages; that the argument of personal health for athletics, business and pleasure is stronger. This is true of many older and probably true of the very great majority at thirteen whose interest in all sex problems has ever been thwarted and misled. It was a powerful appeal to these twenty who had intelligently studied biologic phenomena. They were told that much misery springs from idleness and ignorance, leading to impure thoughts and degrading habits, both of which react upon the nervous system and injure the reproductive function; that all functions are equally worthy of serious consideration; that no one lives for himself alone; that every life affects other lives. This sex talk was given in one period out of the 200 of the year, not, therefore, unduly prominent.

The teacher watched closely the impression made and after effects, and believes that every boy and girl with no exception took this frank talk in the same clean-minded way in which the whole course had been followed. This excellent work impresses one as carried out with commendable prudence and understanding of popular prejudices, of children's capacity and of their *instinctive wish at these ages to understand the origin of life and various sex problems.*[2]

ONLY ONE NORMAL COURSE.

In normal schools biology including physiology is occasionally quite good; but it has not been my fortune to find even one giving instruction in the physiology and hygiene of sex. The best course found is in a private normal institute. Here as a part of hygiene the necessary physiology and anatomy are given. By *papier maché* models of pelvic viscera and various stages of impregnated ova human reproduction is taught. This is followed by a week's lectures by a medical woman on sex functions, pregnancy, childbirth, the development of the child; social diseases. The regular instructor takes them to a public in-

[2] Details of this and other courses are reported by the committee to investigate the teaching of hygiene in public schools. Section II, The Teaching of Hygiene through Domestic Science and Nature Study, American Academy of Medicine, Easton, Pa. Price, 20 cents.

stitution where infants and other victims illustrating heredity and degeneracy can be seen.

DEPARTMENTAL TEACHING.

Several significant points deserve our attention: one, the avoidance of sex subjects from the human view point; another, the possibilities demonstrated in the biologic view point by special teachers for pupils over ten and by general teachers for those younger.

Special teachers in other subjects for children of the seventh and eighth grades are increasing yearly in our most progressive cities, such as New York, Boston, Cambridge, Philadelphia, Chicago, Cleveland, Albany and others. The departmental method for pupils over ten has long obtained in Germany and Sweden whose educational results are admittedly ahead of ours. Superintendent Maxwell with numerous followers is vigorously leading our movement, and partial departmental instruction at least is bound to come. *There seems to have been no one sufficiently interested to work for competent teachers of hygiene.*[3] The opportunity is at hand in this present widespread movement for regenerating education. The need is imperative. *Surely it is the physician's special mission in popular education.*

REMOVAL OF MYSTERY.

Again looking for significant features we note that these biologists and very many of those general teachers knowing only a little biology sought to remove all mystery from reproduction by beginning with single cell life; both their scientific sense and pedagogic sense induces them to follow nature's method — progress through cell differentiation to increasingly complex organisms. It suggests that the child's mind like the child's body grows normally along evolutionary steps.

And we come here to another significant feature of these attempts. These biologists stopped short at man. They laid an indispensable foundation requiring only one comparatively easy biologic advance further, and there with few exceptions left the rest to be inferred by analogy. When I asked why, if they did not wish to give this instruction, they did not invite a physician to do so, the essence of their various excuses was that they knew no physicians who could do it satisfactorily, *i. e.*, scientifically, definitely, clearly and wholesomely.

UNPREPAREDNESS OF TEACHERS.

It would be wise to admit at the outset the unadvisability of one course of action. I have heard two leading educators thoroughly in sympathy with our ultimate aims say thoughtfully and positively: "I know no men in the schools in my city and but few women whom I should be willing to have talk on sex matters to my boy and girl." I could quote others. And we have seen that teachers equally object to doing it. On both sides the unpreparedness of our present teachers is understood. Therefore we cannot announce the desirability of introducing into all public schools at present instruction in the physiology and hygiene of sex, or we shall antagonize even those who wish us success.

CO-OPERATION OF SCIENTIFIC TEACHERS.

But there are two things we can begin upon at once: first, secure the active co-operation of all those special teachers already well disposed, pushing the endeavor slowly but persistently from a few schools to more, acquiring wisdom with experience.

Second, we can at once frankly state our facts to the authorities in every normal school, and emphatically urge the proper training of teachers, assuring them of our determination that public education shall offer better protection from the terrible ills with which society surrounds youth. We wish all teachers as a part of their general training in hygiene to be scientifically informed of the elements of the physiology and hygiene of sex, of the nature of social diseases and their results, of the vices to be guarded against among children and of practical methods of doing so; but we do not wish all to teach these subjects.

FACTS *versus* GENERALITIES.

In securing the active co-operation of competent teachers, after numerous discussions with some of our best, I am persuaded of two points. We must offer them, not generalities nor moral suasion; but the same hard facts that have convinced us and therefore will convince the world. *Concealment is the best friend of "the great black plague."* Not until we place it where it belongs, on the same basis with diphtheria, smallpox and tuberculosis, can we succeed. It is time at last to take this scientific and righteous stand, beginning with teachers a few of whom are already classifying social diseases with other contagions, and teaching reproduction along with other functions. One wrote me: "It indicates an unwholesome state of mind to discriminate against either important item in its natural, logical place."

A few weeks ago I discussed this subject and the aims of this society at a round table in connection with a meeting of teachers of science from colleges, universities and public schools. At this private conference there were 12 women biologically trained and of recognized force. They were in favor as they had always been of efforts to check sexual vice, chiefly for moral reasons. None of these well-read women had any but the vaguest knowledge of social diseases, their results and their prevalence. It is this last — their prevalence — that is moving us. Teachers lack this motive power.

They were startled, as we all have been, and deeply impressed by the statistics quoted. Their questions were directed to two chief points: "What are the facts and where can we find them?" and "If we undertake it, how shall we do it?"

After earnest discussion one, with emphatic concurrence of the others, made a comment so

[3] "Laws concerning teaching hygiene" are studied in the *Journal of the American Medical Association*, Dec. 23, 1905.

wise that I repeat it. "Doctors are not fair to ask all this of us! Why don't they teach the fathers, and have them teach their sons? And why don't they protect society from these contagions by reporting them to health boards?" I replied that many of us cried *peccavi;* that this society and some others were hoping to accomplish the steps suggested; but that *we must have help,* and felt that no more valuable allies could be secured than professional instructors of youth.

INSTRUCTION IN EVIL NOT NECESSARY.

It is then needful to give these special teachers suggestions as to methods, and to indicate the facts essential for children to be taught. One point needs emphasis by frequent repetition: *It is not necessary to teach evil in order to teach good.* Some instructors have, and more can, give *the good we want in place of the evil given by others.* And these instructors *show that there is ample time in schools for this. We have but to substitute efficient work for the poor nature study and hygiene now taught.*[4]

Both boys and girls between ten and sixteen should know the names and functions of the chief organs of the body including the reproductive system; should know in a general way of the development of the ovum, of birth, of the principle of heredity, thus understanding the *sacredness of life from the beginning.*

Both should learn the significance of home as the biologic unit of society, and the responsibilities of parents and of children.

Both should briefly, along with other contagious diseases, learn of the tubercle bacillus, *spirocheta pallida* and gonococcus. A few social statistics will aid. Both should learn the importance of clean thoughts, of occupation, of physical exercise, in leading clean lives and in achieving success; and the avoidance of tobacco and alcoholic drinks especially in this connection.

Each sex separately needs further instruction either by a physician, or by a pamphlet, or preferably by the instructor if competent; but in any case with authority, clearness and discrimination: girls on the care of the health during menstruation, the sacredness of motherhood, and the care of infants; boys on the new but normal phenomena of adolescence, the avoidance of advertised remedies and advice from ignorant friends and adults, the value of continence, and avoidance of idleness, unclean thoughts and self abuse.

With this physiologic, hygienic, sociologic instruction as a foundation, the ethical side has much more significance and should be strongly urged; personal honor, justice to others, and love for future children in a home of one's own being effective motives with many.

FIVE METHODS.

We have found paths "blazed" in 5 directions: one by teachers of domestic science discussing syphilis and gonorrhea among other contagions; can teachers of home making do more than this wisely and in lower grades? In a few gymnasia the women directors instructing in care of the health during menstruation; can directors of physical training wisely give more instruction concerning the physiology and hygiene of sex? In 5 cases lectures by physicians, unsatisfactory but better than nothing; can medical lecturers be utilized more extensively in schools and parents' clubs? In 9 schools pamphlets handed to individual pupils with or without personal talks; again unsatisfactory because reaching but a few, giving very limited information, and retaining the impression that this is a subject of concealment unfit for study; should we make further use of pamphlets? In 30 or more primary grades and in 9 high schools the origin of life and significance of sex thoroughly well taught by biologists, up to man; and in 2 of these sexual morality and the dangers of social diseases discussed with a considerable degree of frankness.

We can hardly urge any one of these methods exclusively when all are so experimental. We would do wisely to report them all, asking educators to continue and develop these or such others as seem wise in their particular environments, until a satisfactory solution is attained. It is probable that in the end each will prove useful, in different places, the biologic undoubtedly predominating.

TWO FUNDAMENTAL POLICIES.

Whatever method be chosen, we should be convinced ourselves and should convince others of the importance of two fundamental policies: one, that the ideal method will closely co-ordinate sex instruction, logically, naturally, with other class work and with the school program; the other, that the pupil's mind must be suitably prepared for the sex instruction. These two are almost one. It amounts to saying that harm is liable to follow interjecting sex instruction by itself. Most children would be startled, among some evil talk and possibly actions would follow, parents would properly object. This is the risk taken in asking physicians to give sex talks, and in handing pamphlets to special pupils; their minds have not been prepared. This is the reason the biologic method is quietly extending. The sex instruction comes in so logically as well as thoroughly that neither children, parents nor school committees realize that conventional prejudices are being undermined, and thus far no opposition has resulted.

PREPARATION OF PUPILS' MINDS.

But the keenness with which these few wise biologists realize the importance of preparing the child's mind is illustrated by the reply made by one who ended with a frank sex talk. I asked whether she gave such a talk in her physiology and botany. You will remember that zoölogy extended through the year. She replied: "I did not give sex talks in my botany and physiology. The courses covered only 4 months and I was unable to bring the subjects to the point of development where that would have been natural

[4] The author presents a broader discussion including the financial aspect in the *New York State Journal of Medicine,* November, 1906.

and practicable. Next fall those students in other classes will be given instruction designed to prepare them for a sex talk."

Co-ordination with the school program is also vital. One very able high school principal thoroughly approving such instruction for girls by the fine woman at the head of domestic science refuses to have corresponding instruction for his boys because "they have no courses logically leading to the subject." Another said to me: "I do not think there is any subject so taught as to put teachers in such relations to their pupils that sex matters can be wisely introduced." Neither has biology in his school.

EDUCATIONAL SHORTSIGHTEDNESS.

The difficulties are great; but they lie with adults, not with children, whose minds are open for good or for evil, knowing no embarrassments until false guides soil them.

Recent files of educational journals testify that this one of the two essentials of life is wholly eliminated from public school policy. They urge more strenuous efforts for perfection of the individual for industrial, commercial, cultural ends. But the sacred function of passing on the torch of life entrusted to each for a few years education ignores and society defiles. The right of protection of wifehood and childhood, of the institutions of marriage and home, of helpless citizens education overlooks and the society produced by such education refuses.

As a result of cultivating but one side — the acquisitive and egoistic — society is burdened with monstrosities and degenerates — financial and sensual and physical. No doctor of medicine and no one who hears our statistics of blighted life can escape moral responsibility for the continuance of these wrongs that disgrace and injure civilization more than insurance and trust and political scandals, than tuberculosis and all other reportable contagions.

CONCLUSION.

As physicians and as social workers we will serve our cause best if we are far-seeing enough to bear in mind the whole program of public schools and of teaching hygiene, the recent trend to special instructors above lower grammar grades, the paths already "blazed," and so co-ordinate our efforts with all this that both ours and the others will gain strength from our recommendations. We could hardly wish for a more opportune time than now when so many institutions including educational are under the searchlight of an aroused public conscience.

CAN A SPECIFIC DISEASE BE ABORTED?*

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To be on the safe side in this discussion, let us be sure of our definitions.

"*Specific disease*, a disease which has a determinate course and succession of phenomena, and is due to some distinct and definite cause, as syphilis or itch."

"*Self-limited disease*, one having a somewhat definite course and period of duration."

"*Abort*, to cut short the course or growth of" (Standard Dictionary).

In the light of these definitions, the question for us to consider is practically this:

Is it possible for the physician, by any means at his command, to cut short the course or limit the growth of disease in general; and in particular of such forms of disease as are due to more or less distinct causes, and which, when left to nature, develop according to a determinate course and succession of phenomena, and have a somewhat definite period of duration? To be more specific, can a simple fever be broken up, or a local inflammation be cut short in its early stages? Can you limit the course of inflammatory rheumatism, or abort a typhoid fever, a penumonia, smallpox, gonorrhea, diphtheria, the itch? Can anything be done to limit the ravages of the bacillus tuberculosis, when once it has begun its deadly work?

The answer which shall be given to these questions is of the utmost importance to the physician, as affecting his reputation, his success and the satisfaction with which he practises his chosen profession. It is of even greater moment to the patients whom he treats, and the families under his care, because it helps to determine whether their physician shall be a welcome visitant, bringing hope and added years of life to the sick one, and giving courage to his friends and family, or one whose coming is looked upon with dread, whose presence breathes only despair, who admits himself a failure at the outset, and who practically counts himself out as a factor in the treatment of disease.

It must be admitted that the weight of authority is decidedly against the possibility of aborting a specific disease. It is almost universally assumed that a disease which has once gotten fairly under way must of necessity go on its course uninfluenced by medical treatment. Should a claim be made that a disease has been aborted, the usual answer is, that the diagnosis was incorrect; that a disease is not a specific one unless it goes through a regular course, and if it does this it certainly is not aborted. Hence a specific disease cannot be aborted.

Just here the question suggests itself, Does not nature itself sometimes abort disease? Or to phrase it a little differently, Do not diseases at times abort spontaneously? The answer to this is evident, and the fact is universally recognized by medical authors that such is the case. So well is this understood, that the second answer which is apt to be made to the claim that a disease has been aborted, is that it aborted spontaneously; or that it was an abortive case; or that nature aborts a certain proportion of cases. In each of these forms of reply, the fact of the shortening of the disease from its natural course is admitted, and the only debatable point relates to the possibility of bringing about this result by artificial means, that is to say, by medical treatment.

* Read before the Worcester District Medical Society, April 12, 1905.

But if it be admitted that nature does actually accomplish this beneficent result in certain instances, then why should it be deemed impossible that art should be able to aid in the process? The law of cause and effect is everywhere the same, and it would certainly seem that where nature accomplishes a given result under certain conditions, it might be within the bounds of human skill to aid in bringing about these conditions, and thereby to assist in the work.

Should it be granted that such a result is within the bounds of possibility, and that it is also desirable, is it not the part of wisdom to seek for the means whereby it can be accomplished, instead of crying out in advance that it is impossible, that it cannot be done, simply because we do not know how to do it, or have not the means now at hand?

The history of medicine shows us that every important progress in our art has consisted in the accomplishment of that which but yesterday was declared impossible. It used to be supposed that conscious suffering was a necessary accompaniment to surgical operations; but Morton, Wells and Simpson brought anesthesia to light, and abolished pain in surgery. Not so long ago as to be beyond my own memory, it was considered that " laudable pus " was not only unavoidable, but desirable in the healing of wounds; but Lister showed the world that it was not necessary, and it is now looked upon as a deep and damning disgrace.

But if the possibility of aborting disease be admitted as an abstract proposition, how about it as an actual fact? Are there not instances to prove that, in some cases at least, specific diseases are unquestionably aborted, and that by strictly therapeutic measures? As for example, diphtheria by antitoxin? What better example than this of the abortion of a specific disease can be asked for? It must be admitted that no better example of a specific disease can be found than this. It corresponds at every point with the definition which has been given. Only a few short years ago, few persons were rash enough to advocate even the possibility of aborting it. To-day the world accepts it as a fact beyond dispute, and the physician who fails to abort a case of diphtheria which comes under his care makes haste to explain that it did not come into his hands until it was too late, or that, for some reason beyond his control, he was unable to administer the proper dose of antitoxin at the proper time. It is true, there are still a few persons who deny the utility of antitoxin, just as there are those who decry vaccination, or who continue to hold that the earth is flat and the sun moves round it once in twenty-four hours.

If it be admitted that diphtheria can be aborted, and if the commonly received theory of the action of antitoxin be accepted, is it not within the bounds of reason that there may be corresponding remedies for some of the other specific diseases, if not for all? That this supposition is true is shown by the eagerness with which the medical world has sought, and is still seeking, for just these things. It is also true that in no other disease has an antitoxin been discovered which is as positive and beneficent in its effect as is that for diphtheria; but this fact only serves as an incentive to more earnest effort on the part of scientific men, and as a stimulant to scientific research from one end of the world to the other.

Once more, if this result has been obtained by antitoxin, which is, after all, only a natural product, is it not conceivable that similar results may be obtained by other means, just as natural. And if it be admitted that medical treatment exerts any influence whatever upon the course of a disease, is it not reasonable to suppose that this effect will be most marked during the formative stage, when it is not yet fully developed?

To come down to specific instances, by what strict rule of science must it be declared an error to suppose that sweating may break up a fever or dissipate a local congestion? If we rightly understand the functions of the vasomotor nervous system, and correctly estimate the rôle of vasomotor spasm and paralysis in the genesis of fever, is it not reasonable to suppose that means tending to restore the proper equilibrium to the circulation would have a tendency to dissipate the febrile paroxysm? And if the febrile condition is removed, is not the fever itself aborted, jugulated, broken up, cut short, made not to be?

Furthermore, what doctor in his practice does not strive, when he is called in the formative stage of a fever, to " break it up "? What one does not encourage the patient and his friends to hope that this result may be obtained? And, should he fail to bring it about, what one does not gently intimate that he might have succeeded, had he been called a little earlier in the case?

Now the question is, Are the doctors frauds in this matter, or do they build better than they know? Is not their practice better than their theory? Do they not, by their practice, confess that the doctrine of the jugulation of fevers is a reasonable one? Does it not, indeed, work well in practice?

If antitoxin can abort diphtheria after it has gotten fairly under way, and if it renders a healthy individual temporarily immune to the toxin of diphtheria, then why should it be considered an absurdity to suppose that it can act upon the disease in the stage of incubation? And if antitoxin can do this, why not other agents? Even if no such agents are now known, may they not sometime be discovered? And if this possibility be admitted to be a reasonable one, why not search high and low for the means until they are found?

If mercury be a specific in syphilis, then why may it not act upon the disease in its incubative and formative stages, as well as after it has fully declared itself? Or if not mercury, then some other remedy? Or why, if we were in possession of the proper remedy, might not the disease be aborted in the interval between the primary chancre and the secondary manifestations? If

we possessed a specific in smallpox, why might we not expect to be able to abort the disease in the stage of incubation, as well as to render the subject immune by vaccination, or control the symptoms of the eruptive stage? If diphtheria can be aborted, why not pneumonia, typhoid and malarial fevers, gonorrhea, syphilis, rheumatism and consumption?

Should the answer to this last question be, that we are not yet in possession of the proper remedies and means to enable us to accomplish these results, however much we may desire to do so, I beg to remind you that it is but a few years since we had no organic extracts, no serum therapy, no intestinal antiseptics, no nuclein and almost no alkaloids. Would it not be better to admit the possibility of improvement, and then go to work with all our might to make the possibility a reality, instead of spending our time in crying out, "It is impossible, it is absurd, it cannot be done!"—a cry which has been uttered in the face of all progress since time began.

ANCIENT AND MODERN IDEAS CONCERNING TUBERCULOUS ADENITIS.*

BY HENRY FARNUM STOLL, M.D.,

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THERE is scarcely another disease which has more of historic interest than scrofula, or tuberculous adenitis. It was in the eleventh century, during the reign of Edward the Confessor, that it received the name of "the King's Evil," as that monarch was the first who wrought cures of this malady by the laying on of hands. The practice was continued by all the sovereigns, with the exception of William III, for seven hundred years. Queen Anne was the last to employ it, and Samuel Johnson was treated by her in his infancy.

It was believed that the malady took its origin in "the vice of the system," and accordingly, careful mothers were wont to counsel their children against marrying one who had shown evidences of "the vice" in early childhood. The operation was most commonly performed on Sunday after the morning prayer, though cases treated on Good Friday seemed to do especially well. It consisted in the laying on of the hands which was followed by tying about the neck of each patient a white ribbon to which was suspended a gold coin worth nearly two dollars. The spirit of graft appears to have been rampant even in those days, for we are told that "very strict precautions had to be adopted to prevent those who valued the gold more than the relief from their infirmities, from making too many calls."

Some are said to have recovered on the first touch, while others did not completely recover from their ailments until a second "touch" was made. We are told that the only cases who received no relief were those whose "little faith and credulity starved their merits." So prevalent did the custom become that Charles II touched nearly one hundred thousand people in twelve years. Small wonder then, that silver was sometimes substituted for gold and that even the silver coin was omitted in some cases.

As ours is an age of progress we would expect to find this method of cure perfected to-day, and we are not disappointed. For while *Mother Eddy* and her followers cure all save those whose "little faith and credulity starve their merits," at the conclusion of the treatment the grateful patient hangs the coin about the healer's neck.

The term "scrofula" was rather loosely used, for, in addition to enlarged glands of the neck, it was applied to phlyctenular ophthalmia, chronic otorrhea, white swellings of joints, bone disease, strumous ulcers, cold abscesses, lupus and hereditary syphilis. Thus we see that the name "scrofula" was applied to about as many ailments as "malaria" is to-day. The association of enlarged glands with tuberculosis had long been noted, and though it was suspected that there was a common etiology, it was not until after the tubercle bacillus was discovered by Koch that their relation was proven.

Tuberculosis of the lymph glands is more common in children between the ages of three and ten than tuberculosis of the lungs, and next to the bronchial glands, the cervicles are most commonly involved. In order to understand clearly the manner in which the infection takes place, we must consider briefly the arrangement of the lymphatic glands of the neck. These glands are divided into a superficial and a deep set. The former being subdivided into submaxillary, suprahyoid and cervical groups. The deep set form a chain which extends from the skull to the thorax. They are numerous, of large size, and lie along the sheath of the carotid artery and jugular vein. They are subdivided into two sets: An upper, situated above the bifurcation of the common carotid, and a lower, clustered about the lower part of the internal jugular vein. They are in communication with the thoracic, the superficial cervicals, and the axillary glands, and with the corresponding chain of the opposite side. It is the upper group of the deep set which concerns us especially, as it is more often first involved because its lymphatics come from the tonsils, palate, pharynx, larynx, orbit, roof of the mouth and nasal fossæ. The process is usually first manifest in the nodes at the angle of the jaw.

The glands may be infected primarily by bacteria in the food or in the inspired air, or secondarily from a tuberculous lung. Lymphatic tuberculosis is more common in children than in adults for a number of reasons. In the first place, the extreme delicacy of the mucous membranes greatly facilitates the passage of bacteria through them. Secondly, the lymphatics are relatively larger and more permeable in children. Thirdly, adenoid vegetations, so common during the early years, narrow the respiratory passage, thus aiding the deposition of bacteria at this particular point,

* Read Nov. 26, 1906, before the Surgical Section of the Hartford Medical Society.

and greatly interfering with their subsequent expulsion. Moreover, the further progression of germs into the deeper tissues is enhanced by the deep clefts upon the surface. In the fourth place, the crypts of hypertrophied tonsils very often furnish a port of entry for the germs. Many investigators have demonstrated tubercle bacilli in adenoid tissue and tonsils removed from apparently healthy individuals. Lartigau [1] found 15% of all adenoids tuberculous, and Robertson [2] demonstrated tuberculous tissue in 8% of all hypertrophied tonsils, taken irrespectively. Baumgarten and Wesner,[3] moreover, have repeatedly noted infection of the glands at the angle of the jaw in their feeding experiments.

The glands enlarge painlessly at first, and no symptoms are present. Later there are often evidences of malnutrition and slight fever and sweats may be observed. The increase in size is not steady; there are periods when they remain stationary and even recede. When first seen they are freely movable, not tender, and their individuality is preserved. Later they tend to become matted together and break down. Treves [4] estimates the time when suppuration most commonly occurs as three and one-half years after their first appearance.

While tuberculosis of the cervical glands is rarely the direct cause of death, there are certain sequelæ that are of much importance. One of the most common is the disintegration of the gland with abcess formation, resulting in disfiguring cicatrices. Volland [5] believes that most of the cases of pulmonary tuberculosis are traceable to an infected cervical gland, while Cornet,[6] on the other hand, says: "The cervical chain is rarely found to be implicated in cases of pulmonary tuberculosis in children. When both sets of glands (bronchial and cervical) are simultaneously involved, it is fair in most cases to assume a secondary focus of infection for the cervical group." Gröber,[7] however, has shown that the enlarged tuberculous glands may occlude the lymphatics by direct pressure, thus causing a reversal of the lymph current which allows tubercle bacilli to be carried to the glands within the thoracic cavity.

Again, acute illnesses, especially the infectious diseases, cause increased swelling of the already diseased and swollen parenchyma, and sometimes the tension is so great that the capsule ruptures, and a dissemination of the bacilli takes place. Very rarely a general miliary tuberculosis has its origin in a tuberculous cervical gland. In many cases, however, the swelling subsides, after persisting for a time, and the child has no recurrence. In adults, the spontaneous disappearance of the glands is less common.

The lymphatic system, as you know, has both a nutritive and a protective function. The germs taken up by the lymphatics are filtered out by the glands and usually destroyed there. When, however, the bacteria are present in overwhelming numbers the glands are destroyed in their vain endeavor to protect the body, and become a menace to their possessor.

The conditions most commonly confused with tuberculous adenitis are (1) simple (that is, non-tuberculous) adenitis; (2) Hodgkin's disease and (3) malignant growths. An adenitis regularly accompanies the acute infectious disease and may persist for some time after recovery. Owing to the vast numbers of bacteria which gain access to the mouth, hypertrophied tonsils are often infected by other germs than tubercle bacilli, and the glands in juxtaposition enlarge. Laser examined 1,216 school children and found glandular enlargement in all but 11.3%. It was traceable in the majority of cases to the infectious diseases. Volland detected enlarged glands in 96% of 2,506 children, whom he examined (von Bergmann's Surgery). The parasitic diseases of the scalp frequently have an accompanying adenitis. The glands involved are the suboccipital, mastoid or parotid groups of the superficial chain. Owing to the frequency with which the cervical nodes are infected secondarily to tuberculosis of the tonsil, it is important that when the tonsil is removed it should be examined for tuberculous changes if an adenitis be present.

Hodgkin's disease is uncommon in children, and the anterior and posterior chains are usually first involved. Then, too, the glands are not prone to suppurate as in tuberculous adenitis. They may reach large size, yet tend to preserve their individuality. At times, however, Hodgkin's does occur in children, and the glands at the angle of the jaw may be the first to be involved. A positive diagnosis can be made by removing a gland and examining it microscopically. A negative local reaction to tuberculin excludes a tuberculous process, but a positive reaction has not as much value since Hodgkin's disease and tuberculosis may co-exist. Malignant growths of the neck are difficult of diagnosis. They tend to become adherent to the underlying tissues, and owing to their deep situation, frequently cause pressure symptoms. Only by the removal and microscopical examination of a gland can one be sure of the diagnosis. In all cases where the diagnosis is in doubt one should refrain from extensive operative interference until he has determined the nature of the condition.

Treatment. — Much can be accomplished by prophylaxis. The teeth should receive careful attention, and adenoids and hypertrophied tonsils should be removed, especially when the cervical glands are enlarged. The air breathed by the children should be as free from dust as is possible, and great precaution should be exercised in procuring pure milk, for not only does infection take place directly through the tonsil, but Schlossman and St. Engle [8] recently demonstrated tubercle bacilli in the lungs of young guinea pigs shortly after tuberculous milk had been introduced into their stomachs, which had been exposed by a laparotomy. Of paramount importance is the placing of the child in a favorable environment. He should be out of doors constantly and his diet should be bountiful. Sometimes the glands appear to subside more rapidly if the post-pharynx and tonsils are painted twice daily with a solution of

iodine gr. x, potassium iodide gr. xii, and glycerin ℥i. Pusey,[9] Williams,[10] Feldstein[11] and others have reported cases which were apparently cured by exposure to the x-rays. It would be well if the x-ray treatment were employed in conjunction with the "out-of-door good-food" treatment, especially in those cases where pulmonary tuberculosis is present. Its post-operative use would probably diminish the number of recurrences. When no improvement follows the employment of the above treatment for a number of months, operative interference is indicated, providing the lungs appear to be free from disease or not extensively involved. The complete operation is the one of choice, providing there is no contra-indication to a prolonged operation. C. M. Robertson [12] quotes the rather startling statistics of Gröber, who collected cases from several observers and found that 75% of the cases who were not operated upon subsequently developed pulmonary tuberculosis, while less than 15% of those who had the glands removed developed tuberculosis of the lungs. This percentage is very much higher than is usually given, as the following figures, taken from von Bergmann's Surgery, demonstrate: Mitchell 14%, Fraenkel (Billroth's clinic) 10.2%, Jordan 26%, Blos 19%, Furnrohr 26.4%, Ternino 21%, Vohlgemuth 12%, von Noorden (von Burns' clinic) 20%.

It is well nigh impossible to draw any valuable deductions from these statistics, for, while one reports cases who had pulmonary tuberculosis at the time of operation, another refers to cases which were followed for years, in whom no operation was performed. Then again, the problem is made even more difficult of solution by the fact that the vast majority of the cases, presumably, were not given the treatment that at present is recognized as essential for a recovery from tuberculous disease. Thus Blos [13] observed a spontaneous cure in but 16 of 308 cases which he followed for some years. Yet we can be pardoned if we wonder how many "took the cure" faithfully for a number of months.

Aspiration of broken down glands followed by the injection of iodoform-glycerin solution has not met with the success its advocate hoped for. Better results seem to follow incision, curettage and packing.

We are quite apt to think of the complete extirpation of the glands of the neck as a comparatively recent operation, yet it was advocated many years ago by one John Browne who lived in Norwich, England, in the seventeenth century. When one considers that he lived in an age when the malady was considered as a mark of evil distemper, that he was one of those who assisted the king in the ceremony of "laying on of hands," and that his was a time when surgery was very crude, his words seem truly remarkable. He did not share the prevailing superstitions concerning its origin, for he stated that it was due to "no fictitious distemper or imaginary evil, but rather a proper disease." Concerning the treatment he said, "These tumors do require extirpation and extraction . . . to be so dexterously performed as that no part be left behind. . . . Our greatest advice in the use of the knife is to have a particular and special care to the vessels bordering upon the parts, namely the nerves, veins and arteries, lest they be injured thereby. The glands are to be extracted with great care and caution so as no vessel whatsoever be injured by the operation; and if any flux of blood may happen in this operation, it is presently to be stopped with restrictives, and this method is to be prosecuted till every part of the cystus or bags thereof are perfectly and thoroughly eradicated and extracted the which being done and the part clean, mundifie the ulcer, digest, incarn and then induce a cicatrix."

The ideal method of fixation is the plaster bandage, but unfortunately the surgeon sometimes considers his responsibility ends with the last turn of the bandage. I have repeatedly seen post-operative cases of tuberculosis of the joints, glands and peritoneum, spending their convalescence in the wards of the hospital when they might to advantage have been "taking the cure" on the veranda. Even with the utmost diligence it is always possible that some tuberculous tissue has eluded one, and accordingly we should urge our patients to keep in the best physical condition possible for several years. A person with tuberculous adenitis, like one with pleurisy with effusion, can scarcely be considered out of the danger zone until three or four years have passed.

There can be no doubt but that earlier diagnoses of tuberculous lesions, and a keener appreciation of what can be accomplished by the fresh air treatment, will materially diminish the number of cases in which operative interference is indicated.

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13. Von Bergmann: System of Practical Surgery.

Clinical Department.

CHLORAL DELIRIUM: A CASE REPORT.

BY H. W. MITCHELL M.D.,
Senior Assistant Physician, Danvers Insane Hospital, Danvers, Mass.

THE following case report illustrates the resemblance between alcohol and chloral delirium.

J. S., admitted to Danvers Insane Hospital, April 14, 1906.

Family history. — Parents, who were of Irish birth, died of tuberculosis soon after coming to this country. An only sister died in childhood. Father was intemperate. No other facts obtainable.

Personal history. — Aged sixty-two; married; shoemaker. One daughter, a healthy adult, living; two

children died in early childhood of infectious diseases, and two were still-born. Illiterate, barely able to read and write. Enlisted in the United States army at age of eighteen and served nearly five years. Was in active service during the Civil War. Suffered from malaria while in the South and had "chills" at intervals for some years after the war. For the past ten years has complained of vague rheumatoid pains and has suffered from insomnia. No serious illness, but has not been strong and healthy since army service. Used alcohol very moderately until 1897, since that time has been a total abstainer.

In 1891, following the death of a child for whom he deeply grieved, the use of chloral was begun to relieve insomnia. Previous to this time, he had never shown any nervous or mental disorder, and he was of a cheerful, lively temperament. The chloral habit became fixed and for many years he was in the habit of taking 15–30 gr. nightly.

The family noticed no bad effects until about four years ago, when he began to be unusually restless at night, and had to use more chloral to secure broken sleep. During the night, he would fancy that he heard horns and bands of music, and, finally, began to hear voices. He would be irritable and unreasonable in reaction to hallucinations which would appear irregularly for a time and then he would seem as well as usual for some months, only to have a recurrence. Three years ago, he took a large but unknown amount of chloral with suicidal intent, but was resuscitated. Chloral was gradually increased and the amount used can be estimated as averaging 75 gr. daily. For a time, he had obtained some of his chloral upon a prescription calling for a smaller amount of bromide of sodium. Until nine months before admission, family noted no more serious symptoms than previously mentioned, but after that he formed delusions explanatory of his hallucinations; imagined his neighbors were conspiring against him; bought a revolver to protect himself from incendiaries whom he believed to hover about his house at night. He lost in weight, became very tremulous and feeble, and in October, 1905, had a delirious attack lasting several weeks. At this time, saw strange animals and men about him and heard voices applying abusive epithets. He was restless and disorderly. Confined to his bed. This acute attack subsided rapidly but he soon resumed use of chloral. For some weeks before commitment, he was suspicious, deluded and threatening. Could take but little food, became feeble and very tremulous and even with more frequent doses of chloral got but little sleep.

He was taken to police station April 13 and brought to the hospital on the following day.

Physical condition. — Poorly nourished. Pulse soft, rapid and irregular. Temperature, 98.8°. Tongue heavily furred. Countenance cyanotic. Slight bronchitis. Abdomen and urine negative.

He walked with feeble, unsteady gait. Pronounced Romberg symptom. There was a fine, fibrillary tremor of facial muscles. Speech was tremulous and husky and there was general tremulous inco-ordination. Reflexes generally lively. Vision defective. Pupils reacted to light and accommodation. Considerable blunting of tactile sensibilities.

Mental conditions. — Completely disoriented. Attention could not be held in conversation. He was restless and disorderly when left to himself, moving his bed about, throwing his bedding around the room, trying to climb out the window, keeping constantly in motion. Had auditory and visual hallucinations. Slightly apprehensive. Could be induced to take only liquid nourishment. This delirious confusion and activity gradually subsided and on the fourth day he could converse responsively and attention could be held. He was still disoriented and had no grasp upon surroundings. No longer hallucinated. Practically no memory for recent events. Continually abusing his wife and charging her with immorality and a desire to be rid of him. Able to grasp explanations concerning his surroundings.

During this time, temperature had not risen above 100°, he had taken liquid nourishment in small quantities. Sleep had been very fitful, but restlessness gradually decreased.

From this point, physical and mental improvement were rapid, and at the end of first week he had good insight and had corrected all his delusions concerning family and associates. There was only partial restoration of memory for the period of active disturbance. He was grateful that the chloral habit had been broken. He could sleep from four to six hours nightly without hypnotics, and was cheerful and contented. The tremor persisted for nearly three months. During this time, he gained ten pounds.

He was removed by relatives on Aug. 1, 1906. He was recently seen and stated that he was sleeping better than for years and had not resumed his habit. He appeared to be in even better physical condition than at time of leaving the hospital.

In 1873 Elliot[1] stated that there was no appreciable difference in delirium tremens resulting from use of chloral or alcohol. Only the history made the differentiation possible in this patient. For several years he had suffered from pain and stiffness, which were assumed by the patient to be rheumatic in character. These symptoms disappeared entirely while he was at the hospital.

Griffiths[2] describes the occurrence of pains in joints and muscles following prolonged use of chloral.

Antheaume and Parrot[3] advise the gradual reduction of drug over a period of about twelve days and say that delirium may follow the abrupt withdrawal of chloral as of alcohol.

There was abrupt withdrawal in this case. Stimulants, forced feeding, hydrotherapeutic measures, with a hypnotic for the first three nights in hospital, were the only means used to aid in a gradual and uneventful recovery.

MacKenzie[4] reports delirium following use of 15 gr. of chloral hydrate daily for a period of five weeks.

Da Costa[5] tells of delirium in a man who began to use 20 gr. daily and increased the amount to nearly an ounce during a period of six months. Mental symptoms were not observed in the case until nearly twelve years after habit was formed.

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[2] Griffiths: Chloralism and Alcoholism. Practitioner, 1876, vol. xxii.
[3] Antheaume et Parrot: Le Delirium Tremens Chloralique et son Traitement. L'Encéphale, Jan., 1906.
[4] MacKenzie: Jour. of Ment. Sc., 1876, vol. xxii.
[5] Da Costa: Acute and Chronic Chloral Poisoning. Phil., Med. Times, 1882–83, vol. xxiii.

ACCORDING to the *Medical Record* the College of Physicians of Philadelphia has received from Mr. Andrew Carnegie $100,000 towards the erection of its new building, on condition that a like sum be raised, of which $80,000 has already been subscribed.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D.

ACTION OF DIURETIC DRUGS AFTER NEPHRECTOMY.

WEBER believes that his experiments on rabbits have proved that the caffein group of diuretics acts not only on the kidneys, but upon the general capillary system as well.

NEW REACTION FOR SPERMATIC FLUID.

Barberio announced some time ago that when a concentrated watery solution of picric acid is added to spermatic fluid, a deposit of yellowish rhombic crystals results. Levinson,[2] after experimenting, has found that these crystals must come from prostatic and seminal secretions, because they were found always where no testicular secretion was present or possible. The medico-legal value of the test is therefore obvious, as by its means, the source of the suspected substance can be definitely proven even in the absence of spermatozoa.

AUTOPSY FINDING AFTER SUPRAPUBIC PROSTATECTOMY, IN A CASE OF TUMOR OF THE PROSTATE.

Moscou's [3] patient died twenty-four hours after the operation. The autopsy showed that the removal of the tumor still left the original prostate perfectly intact, it having been pushed aside as the tumor increased in size. In confirmation of this, the ducts were found intact and permeable.

FILARIASIS.

In a carefully compiled and comprehensive article, with an extensive résumé of the literature of the subject, Cunningham [4] reports a case which he treated surgically, and expresses the belief that more cases should be so treated. He says, in conclusion, "Even though the parent worms are not found, as in the writer's case, they may be retained within the diseased mass and escape detection, the embryos disappearing from the blood, and the individual remaining free from his symptoms. On the other hand, when the parent filariæ are known to be left, alleviation of the symptoms has followed by overcoming the stasis and regurgitation of chyle."

THE IMPORTANCE OF CYSTOSCOPY IN THE DIAGNOSIS OF EARLY RENAL TUBERCULOSIS.

Fenwick [5] has insisted (from 1885) upon the importance of the appearance of the ureteric orifice as an aid in the diagnosis of renal tuberculosis, and believes that what he calls a dragged out or retracted orifice is practically pathognomonic of renal tuberculosis. He explains the reason as follows: "The retracted, displaced ureteric orifice points to a thickened ureter, shortening lengthwise. This involves narrowing and obstruction of the channel of the ureter. This again implies back pressure of urine upon a thickened, unyielding pelvis, and a tough renal parenchyma, which may show, microscopically, the existence of interstitial nephritis."

NEW OPERATIONS.

1. *An operation for the radical cure of cancer of the prostate.*[6] Young's data are derived from a study of about 50 cases. He describes in detail, with several illustrations, an operation for the removal of the whole prostate and the adjacent portions of the bladder, through a perineal incision, He concludes, as a result of his personal experience, that cancer of the prostate is a much more common disease than is popularly believed; that about one out of seven is probably a just estimate of its frequency in cases of prostatic enlargement; that its diagnosis, previous to operation, is possible, and that with such an early diagnosis, the percentage of cures should be large.

2. *An operation for the irrigation and drainage of the seminal vesicle through the vas deferens.*[7] — Belfield has found such irrigation and drainage invaluable in the treatment of suppurating inflammations of the seminal vesicle and vas deferens. He says that by this method these very common ailments are made amenable to treatment without danger to the patients or to the parts involved. He describes his method of operation in detail, and claims that it does not result in occluding the vas, which fact has been demonstrated by experimental observations on dogs as well as by clinical observations on human beings.

3. *Operations for sterility in the male.* — Since Martin of Philadelphia described his operation several years ago, a number of other observers have written on this subject.

Mauclaire [8] describes an operation for grafting together the two testes by freshening their inner surfaces with crescentic incisions and suturing the corresponding wounds on the two organs together. His description is made with some detail and with an illustration. He says that operation is not to be done after epididymectomy for a tuberculosis affection, but is of the greatest use, either alone or associated with the implantation of the vas deferens into the epididymis, in cases of occluding inflammation.

4. *Anastomosis of the vas deferens.* — Lydston [9] describes, with great detail and three illustrations, his method of making an anastomosis of the vas deferens. He describes six cases in his own experience, one of which has resulted in a restoration of function of the vas, and of the other 5, only one, so far as he knows, is a failure.

5. *Operation for sterility in the male.* — Quinby [10] experimented with guinea pigs, and describes an operation for anastomosis between

[1] Weber, S.: Deut. med. Wochenschr., Berlin and Leipsic, 106, vol. xxxii, No. 30.
[2] Levinson, J. B.: Berl. klin. Wochenschr. 76, vol. xliii, No. 40.
[3] Presse Med., Paris, 21, vol. xiv, No. 35.
[4] Cunningham, Jr., John H.: Ann. of Surg., Oct., 1906.
[5] Fenwick, E. Hurry: Brit. Med. Jour., Jan. 27, 1906.
[6] Young, Hugh H.: Johns Hopkins Bull., Oct., 1905.
[7] Belfield, William T.: Proc. of the Am. Asso. of Gen.-Urin. Surg., June, 1906.
[8] Mauclaire: Ann. des Mal. des Org. Gén.-Urin., Paris, 17, vol. xxiii, No. 20.
[9] Lydston, G. Frank: Jour. of Am. Med. Asso., July 21, 1906.
[10] Quinby, William C.: BOSTON MEDICAL AND SURGICAL JOURNAL, Nov. 8, 1906.

the vas and the head of the epididymis which he has performed successfully upon those animals. After a most careful and conservative statement of the actual results obtained, he believes it is fair to state that sterility, in a certain number of instances, is due to the constricting effect of a bilateral epididymitis; that when so caused it may be relieved by an anastomosis, and that this fact has been proven by himself upon guinea pigs, and by Martin of Philadelphia on dogs and men; that such an operation offers practically no risk to life; that its performance is not difficult, needing only familiarity with anatomy and pathology, proper suture material and gentleness in manipulation.

NEW INSTRUMENTS.

A new instrument to obtain urine from the kidneys separately.[11] — With this instrument the urine from each kidney separately is obtained by making pressure through the abdominal wall upon the ureter of the other kidney during the process. This compression is made at a point at the side of the fifth lumbar vertebra where the ureter passes over the iliacus muscle.

INTERESTING AND UNUSUAL CASES.

1. *Bilharzia infection of appendix.*[12] — Burfield [12] reports the infection of a post-operative abscess cavity with Bilharzia which gained entrance through the sinus while the patient was in swimming. The eggs were found in the appendix, but there was nothing in the story of the patient to suggest such an infection.

2. *Pneumococcus infection of genital tract.*[13] — Menocal describes three cases of pneumonia complicated by a pneumococcus infection of both spermatic cords in two of the patients and of the testis and epididymis in the third.

3. *Three ureters demonstrated by the cystoscope.*[14] — Lewis demonstrated three ureter openings, two to the left and one in the normal position to the right of the median line. These ureters were proved by passing up into them ureteral catheters with metal wire inside of them. An x-ray picture with the catheters in position was then taken.

4. *Plastic operation upon a kidney pelvis.*[15] — Walker operated upon a young woman with a movable left-sided tumor in the renal region. After incision the kidney was found attached to a large cyst which proved to be an enormously distended renal pelvis. The ureter below was not markedly dilated. Walker's operation consisted in the removal of a large part of the kidney pelvis, in order to reduce its capacity, and a subsequent fixation of the kidney to the body wall.

W. S. Cheesman [16] reports a remarkable case in which recovery followed the removal of a hypernephroma weighing four and a quarter pounds, from an infant twenty months old. The operation was a transperitoneal one and conducted through an incision extending almost the whole length of the right rectus adominis muscle.

The tumor was so large that after it had been exposed, together with the kidney, and both had been freed in one mass, the very generous incision was scarcely wide enough to allow it to be delivered on to the outside of the abdomen. When this had been accomplished, the pedicle was tied with catgut and the kidney and tumor were both removed. The patient made an excellent operative recovery. The time elapsed since the operation is too short to allow any statement to be made with regard to the permanence of the result.

W. C. Lusk [17] contributes an excellent article upon the surgical treatment of prostatic abscess, and advocates the employment of the perineal incision through the space on the outer side of the urethra and between it and the rectum, in order to reach the prostate and to open the abscess within it, without injury to either rectum or urethra. The posterior leaf of the triangular ligament is punctured with the point of the knife and then bored through by the finger until the abscess cavity is reached and opened.

H. Wildbolz [18] *on the results of splitting the kidney open as in surgical exploration or operation.* — Wildbolz as the result of experiments upon rabbits and dogs in which he split the kidneys open and subsequently examined them with reference to the histological pathologico-anatomical conditions, asserts that the amount of injury from this procedure is much less than has been stated by certain other observers (Langemak and Hermann).

In the experiments of Wildbolz the kidneys were exposed in the loins of the animals and split in two by incisions extending deeply into the substance of the middle of the organ.

In some cases the kidney incisions were completely sutured, in others only superficially.

Among the resulting conditions discovered by histological examinations, were the formation of infarctions in the surfaces of the kidney incisions. These however were limited in extent.

As a result of some further experiments in which Wildbolz injected the vessels, he concluded that the part of the kidney which was least supplied with blood vessels was that which would be divided by a longitudinal incision directly through the middle of the organ, this incision consequently would be productive of the smallest degree of parenchymatous destruction.

The incision employed by him was in the long axis of the kidney, whereas in the experiments of the two other observers mentioned above, it was through the transverse diameter. Moreover they employed sutures which were passed deeply into the renal parenchyma. It may be conjectured that the more serious disturbances noted by them were due to this fact.

The comment is made that in cases of moderate renal traumatic lacerations in the human

[11] Heusner: Centralbl. für Chir., Leipsic, 60, vol. xxxiii, No. 7.
[12] Burfield: Lancet, London, Feb. 10, 1906.
[13] Revista de Medicina y Cirugia, Havana, 107, vol. x, No. 2.
[14] Lewis: N. Y. Med. Rec., Oct. 6, 1906.
[15] Walker: Lancet, London, Aug. 11, 1906.
[16] Ann. of Surg., Jan., 1907.
[17] Ann. of Surg., Jan., 1907.
[18] Deut. Zeitschr. für Chir. Bd., vol. lxxxi, p. 34.

subject, in which autopsies have been made at varying periods, of days, months, or years later, very trifling lesions resulting from such traumatism have been found to exist.

Autopsy findings following prostatectomy.[19] — Kuss describes the anatomical conditions found in two cases after the operation of prostatectomy had been performed,—in one by Albarran, a perineal operation, in the other by Hartmann, a suprapubic operation. The clinical histories of the cases were of much interest also. The following points were reported in connection with them.

Case I. Albarran performed a total perineal prostatectomy, removing the gland by morcellement, and taking out of the bladder at the same time a phosphatic calculus of considerable size.

The patient made a somewhat tedious convalescence, but was discharged finally in excellent condition. Two years later he returned with symptoms of vesical calculus, and two calculi of large size were removed by Hartmann by a suprapubic lithotomy operation.

About ten months after this another small calculus was removed, also by a suprapubic operation; a few weeks after leaving the hospital he again returned with complete retention, and a fortnight later died with symptoms of uremia and exhaustion. Autopsy showed that the cause of this retention was not a stricture in the course of the prostatic urethra, but a growth of the glandular tissue of a part of the anterior portion of the prostate lying above the urethra and continuous with the glandular tissue on the lateral aspects of the vesical outlet in such a way as to have formed a transverse bar which prevented the escape of the urine from the viscus.

The significance of this case lies in the fact of the subsequent growth of the glandular tissue of what was left of the prostate, after the first operation, in which it was believed to have been removed totally, and of its thus producing an obstacle to the outflow of the urine from the bladder because of the evident fact that the whole of the enlarged gland was *not* taken away. That this should be the case is not surprising, because of the method of the operation employed, viz., by morcellement.

Case II. In this case in which the operation was also perineal, and done by Hartmann, the post-mortem examination showed that there had been a recurrence of the obstruction to urination because of a subsequent growth of some portion of the gland substance left near the vesical outlet.

Case III. The prostate was totally removed in this instance by a suprapubic operation and enucleation. Death forty-eight hours later.

Autopsy showed that here, too, there existed a bar transversely placed across the neck of the bladder, but not as in the two preceding cases, consisting of prostatic glandular tissue, but of the hypertrophied, thickened bundles of muscle fibres in that part of the bladder.

The volume of the transactions of the last meeting of l'Association Française d'Urologie, held in October, 1906, contains not less than its usual number of valuable and interesting contributions. Among them is the report upon one of the subjects annually chosen for discussion by the members of the association, and which, this year, was that of "The Pathogenesis and Treatment of Hydronephrosis," by M. Pierre Duval and M. Raymond Gregoire. In this article, which is a thorough review and summary of our knowledge of the subject, the reporters adopt the classification of uronephroses of congenital and those of acquired nature. In the former are included such as arise in consequence of anomalies of the ureters viz., their absence, anomalies of number, position, and also abnormalities of the orifices, of caliber, curvatures, and the existence of valves and strictures. The acquired forms are divided into subclasses thus: (1) Due to compression exteriorly. (2) Due to diminution of the calibers of the ureters, (*a*) from the presence of foreign bodies, (*b*) from some lesion of the wall of the canal. (3) Curvatures (kinks) caused by the pressure of an abnormal blood vessel, by a movable kidney, twists, kinks and conditions producing changed relation of the orifice of the ureter to the renal pelvis. (4) Intermittent. (5) Traumatic-hydronephroses.

Each of these subdivisions is dealt with in the most thorough manner and many interesting data and observations are to be found in the course of the text.

Among the conclusions reached with regard to the different etiological factors, are these:

"Hydronephrosis is not produced by the pressure of an abnormally placed blood vessel crossing the ureter unless there exists at the same time a congenital malformation of the ureter."

"Abnormal mobility of the kidney in itself does not seem to be a cause of renal retention. The conclusion arrived at is that when the conditions co-exist, the hydronephrosis is, in fact, developed in a movable kidney, but the two are independent of each other, both result from congenital malformations."

In the discussion that followed the report there are a large number of operative data given, both with regard to conservative and radical measures.

[19] Kuss, M. G: Ann. des Mal. des Org. Gén.-Urin., Nov. 15, 1906.

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, Jan. 9, 1907, at 8.30 P.M., the President, Dr. Charles K. Mills, in the Chair.

Symposium on Roentgen Diagnosis and Therapy.

ROENTGEN DIAGNOSIS IN GASTRIC AND INTESTINAL DISEASE.

Dr. Henry Hulst, of Grand Rapids, Mich., presented this paper which was illustrated by Roentgenograms. For several reasons, it was stated, the tendency in Roentgen ray diagnosis has been away from the screen and toward the plate. Both methods, however, have their peculiar advantages, the screen for general orientation and motion, the plate for detail and permanent record. Bismuth is needed, but the aim should be to use no more than suffices for the purposes of the examination. Some conclusions drawn from negatives shown by Dr. Hulst were that if respiration

does not, position does, exert a marked influence upon the location of the stomach and intestines.

The greater the ptosis the more pronounced the effect. The diaphragm is notably higher on the side on which the person examined lies and diaphragmatic breathing is greatly in excess of the other side.

The horizontal position permits the heart, diaphragm, stomach and colon to ascend. The horizontal dorsal position causes the stomach also to gravitate toward the fundus. This position tends to replace the prolapsed stomach.

Examination for gastroptosis in the recumbent dorsal position is, therefore, misleading. To bring out the existing ptosis it is necessary to put the patient in the erect (sitting or standing) position. Pressure against the hypogastrium pushes the stomach upward; to a less extent, the diaphragm and heart also. Voluntary retraction of the lower abdomen produces a like result and is attended, moreover, by a reflex enlargement of the lower thoracic aperture.

This is the exact reverse of what takes place in enteroptosis in which the diaphragm descends together with the other organs and the lower thoracic aperture diminishes in size.

This suggests the existence of a definite relation between the shape of the body and the position of the internal organs. The Becker-Lenhoff index is but one tentative expression of this relation. In proportion as people are well built their stomach approaches a certain type. Dr. Hulst asserts that good figures are rare, especially among women, and that normal stomachs must, therefore, be rare also. The more of a Venus a woman, the more of an Apollo a man, the more perfectly their stomach corresponds with the normal type; but the author feels that the line is instinctively drawn at enteroptotic Venuses and gastroptotic Apollos.

SOME SUGGESTIONS CONCERNING THE USE OF ROENTGEN RAYS IN DIAGNOSIS.

DR. E. W. CALDWELL, of New York City, presented a paper bearing the above title. The statement is made that all Roentgen ray examinations are made by means of shadows which are obtained by interposing the object examined between a source of rays and a fluorescent screen or a photographic plate. Dr. Hickey's definition of a skiagraph was quoted as "A record of density, produced by the Roentgen rays, and made in accord with the laws of projection." It is remarked that it is evident that no one can be safely trusted to interpret a skiagraph until he has learned to regard it not as a view, but as a projection, and to be constantly on his guard against erroneous impressions of perspective. This tendency to consider the skiagraph or so-called x-ray photograph as a photographic view has led to much of the dissatisfaction with the x-ray and sometimes caused its veracity to be called in question. The x-ray, it is claimed, does not lie; but one who incorrectly interprets its shadows may seem to be lying when he is only mistaken. Considering the skiagraph as a projection and not as a view, the absurdity of the requests for side views of shoulders and hip joints, familiar to every Roentgen ray worker, is apparent. Transverse projections of these parts superimpose the shadows of both sides as well as everything between, and the rays must pass through the body in its long diameter. Such projections are, therefore, in most cases, useless.

With all their imperfections, Dr. Caldwell regards stereoscopic Roentgen projections as extremely valuable in many cases; and, in spite of the difficulty of technique he feels that they must come into more general use. Since in Roentgen work nothing is gained by the print, he thinks it better to use the glass plate and avoid the loss of detail incident to the transfer to printing paper. Whether plate or print is used, it must be remembered that the shadows of similar objects are similar in color. Reference was made to the skiagraph of a supposed vesical calculus the shadow of which, however, was dark and due to gas trapped in the rectum. The great importance of having x-ray work done only by those thoroughly skilled was strongly emphasized, and the paper closed with an exhibition of skiagraphs illustrating the value of x-rays in diagnosis.

SOME PECULIARLY VALUABLE ROENTGEN DIAGNOSES.

DR. E. W. CALDWELL, of New York City, without presenting a formal paper upon this subject proceeded at once to the illustration of Roentgen diagnoses by lantern slides.

DR. HENRY K. PANCOAST opened the discussion, exhibiting skiagraphs, with explanatory statements, included under the practical application of x-ray examinations by the bismuth method in various conditions of the gastro-intestinal tract and esophagus, diseases of the accessory sinuses, and tumors of the brain and head.

DR. CHARLES LESTER LEONARD, in continuing the discussion, said that the practitioner should demand the employment of the Roentgen method of diagnosis by a Roentgenologist whose ability and experience fit him to make diagnoses by its aid which the practitioner himself cannot make. He should demand not only a technique in handling apparatus and in making an accurate Roentgenogram but also an experience and an education in this particular method of diagnosis above his own that fits the diagnostician to render a more valuable diagnosis than the practitioner can make with the same data. Anatomy viewed from the Roentgenogram is entirely different in its expression from any other view. Pathological anatomy is likewise very different and its interpretation demands an experience and study that can only be secured by those devoting time to it. Dr. Leonard observed that he had seen a sesamoid bone in the flexor longus policis described in the *British Medical Journal* by a prominent London surgeon as an exostosis, and the shadow of the patella called an ossifying ostitis by a member of the American Surgical Association. Such mistakes should now be impossible to a tyro in Roentgenology. In closing Dr. Leonard quoted Sir William Bennett, K.C.V.O., in an article in the *British Medical Journal* of Dec. 8, 1906, as saying that "The first essential in all cases of sprain is to determine whether fracture co-exists, which can readily be done by the x-rays when they are available; it should, indeed, be an acepted practice that, when possible, every sprain, especially those near joints, should be examined by the x-rays. In the event of the x-rays being unobtainable, it is wise to regard any case in which the symptoms of sprain near a joint are unduly exaggerated as being complicated by fracture, especially if the parts concerned be the phalanges of the fingers or the metacarpal region. . . . The frequent overlooking of bone lesions in so-called sprains seems to be greatly due to the fixed idea on the part of many people that crepitus is a necessary symptom of fracture, and that absence of crepitus means absence of fracture, a sadly mistaken belief, inasmuch as it need hardly be said, fracture often occurs in circumstances in which the detection of crepitus is impossible. On the other hand, crepitus after injury, especially if near a joint, may be elicited when no fracture is present. I have seen several cases of injury near joints in which fracture has been either diagnosed or strongly suspected on the strength of crepitus resulting from osteo-arthritis in the adjacent articulation."

DR. MIHRAN K. KASSABIAN, in further discussion, exhibited a very large number of lantern slides. In the vast majority of these cases, diagnosis by the x-rays was the only means of differentiating rare, obscure and simulating conditions, such as fractures, epiphyseal separations and displacements, from dislocations. Other slides depicted osseous diseases, (osteitis and periostitis), tumors of the bones, detachment of the ligaments and muscles, diseases of the joints, congenital dislocation of the hip joint, etc. A number of slides exhibited tumors of the trachea and of the vocal cords; while several more showed pulmonary tuberculosis and aneurisms of the heart and aorta. A slide was shown depicting aneurism of the innominate artery which was confirmed at autopsy. A case of stereptothrix was differentiated from tuberculosis by the skiagraph and later microscopically.

SOME APPLICATIONS OF THE ROENTGEN RAYS IN DERMATOLOGY.

DR. RUSSELL H. BOGGS, of Pittsburg, made a plea for a more conservative use of the Roentgen rays in dermatology. In order to apply the rays successfully he said the operator must be able to decide whether Roentgen treatment is the best method available, and then be able to give the dosage necessary to produce the desired physiological action. He suggests that if every operator would first learn the action of the rays by making radiographs of the more difficult portions of the body, results would be more uniform. As the rays are only indicated in certain lesions and should not be employed in a routine manner, each case should be carefully studied and then the method of treatment decided upon.

In the treatment of chronic eczema, stubborn cases of acne, psoriasis, keloid and lupus vulgaris, Dr. Boggs has found the Roentgen method efficient. As an epilatory agent the method is superior to any other in the treatment of parasitic diseases, such as favus and tinea, sycosis and blepharitis. Considering the large amount of ringworm and favus among school children in the poorer districts and the failure of prophylactic measures to prevent their spread, it seems to the author almost imperative that these cases should have x-ray treatment by an experienced operator. The danger is pointed out of having the rays applied by resident physicians, nurses, or engineers.

RADIOTHERAPY IN THE TREATMENT OF MALIGNANCY.

DR. GEORGE C. JOHNSTON, of Pittsburg, considers malignancy in the abstract as a condition of cell anarchy, expressing thereby, the total disregard of the individual cells for physiological law. This disregard is shown by the invasion of new territory and by remarkable multiplication. These new cell formations possess low resistance and poor reparative power, and when exposed to a dose of x-ray, which in normal tissue would produce but transitory irritation, they undergo tissue death. The author shows that in the treatment of internal growths failure frequently occurs because, in spite of every device, an undesirable surface effect is produced before the deepest portions of the growth have received sufficient x-ray. There is pointed out the constantly successful results of superficial malignant conditions in qualified hands, and here the greatest value of the ray is shown in those conditions less favorable for successful surgical removal, such as epitheliomas in and about the alæ of the nose, on and about the eyelids, and about the eyes. It is stated that the treatment of carcinoma in the hands of certain operators has cast much discredit upon the method, hundreds of absolutely unsuitable cases having been submitted to x-ray by inexperienced physicians. While he claims it as true that many primary circumscribed carcinomas have been successfully treated by x-ray alone, yet he regards the wisdom of such treatment doubtful, believing it better to combine surgery and x-ray, submitting the patient to a series of anti-operative radiations followed by extirpation of all infected tissue, and this again followed by a series of post-operative radiations. The objections that have been advanced to anti-operative radiations, he states, are theoretical only and believes that an experienced surgeon will find no difficulty in operating on a patient who has been exposed to x-ray.

DR. G. E. PFAHLER opened the discussion upon the papers of Drs. Boggs and Johnston, showing rapidly lantern slides of about forty-five cases, the most remarkable among which was a case of very malignant sarcoma involving the soft tissues at the angle of the jaw in a young man of twenty years. The tumor developed to the size of an "apple" in three weeks when it was removed surgically. In three weeks it had again developed to its original size and was again removed surgically. On the fifth day after the second operation a photograph was taken when the tumor had recurred and had reached the size of a hen's egg. He was then placed under very active x-ray treatment and after twenty treatments and two months' time it had entirely disappeared and he is still well, a year later, as was shown by a second photograph. With Dr. Boggs he believes the x-ray to be a most powerful therapeutic agent, but that as much skill is needed in its application as in any other special field of medicine, good results depending upon good technique.

DR. JAY F. SCHAMBERG, continuing the discussion, said that the effect of the Roentgen rays upon tissues varies according to the intensity of the irradiations. The following effects were detailed:

(1) The earliest effect is local stimulation or an enhancement of the vitality of the tissue. The rays, doubtless, alter cellular chemistry by the influence of electrified ions upon protoplasm. In the treatment of skin diseases, the cutaneous tissues are reinforced against bacterial invasion and are likewise strengthened against pathological influences from within. It is upon such grounds that the favorable action in eczema and certain other inflammatory diseases may be explained.

(2) A further effect of the x-rays is to produce atrophy of the more highly specialized elements of the skin. This action is utilized in the treatment of acne, sycosis, hypertrichosis, excessive sweating, etc. In acne the rays are the most important therapeutic measures. The best results, however, are obtained when no single method of treatment is exclusively relied upon. It was pointed out that some cases require dietary and internal treatment as well as local measures. A most important part of the treatment in many cases was said to be the systematic expression of the blackheads or sebaceous plugs in the follicular ducts.

(3) The x-rays, if used sufficiently long or strong, cause a degeneration of the cells resulting in necrosis.

(4) The x-rays exert an analgesic influence upon the skin and frequently relieve itching.

(5) The x-rays are also valuable in producing depilation and the extrusion of fungus and thereby exert a curative effect in such cases as ringworm and favus of the scalp.

In quite an extensive experience Dr. Schamberg has never observed toxemia to result from x-ray treatment despite the fact that a number of his patients have had gout and others damaged kidneys. It is to be remarked, however, that his treatments have been directed towards superficial conditions and have not, as a rule, been intended to produce tissue necrosis.

Book Reviews.

Manual of the Diseases of the Ear, Nose and Throat. By JOHN JOHNSON KYLE, B.S., M.D., Clinical Professor of Otology, Rhinology and Laryngology in the Medical College of Indiana, etc. With 160 illustrations. Philadelphia: P. Blakiston's Son & Co. 1906.

This book suggests that its origin may have been the lectures in a systematic didactic course to medical students. An instructor who is about to give such a course of lectures would find it useful as a textbook to put into the hands of his class. Much of it is good, some of it superficial. It follows well the development of the last few years, giving it an advantage over some of the older manuals. As a book of reference for graduate students or practitioners it is too condensed.

Collected Studies on Immunity. By PROF. PAUL EHRLICH, Privy Councilor and Director of the Royal Institute for Experimental Therapy, Frankfurt, Germany. Translated by DR. CHARLES BOLDUAN. New York: John Wiley & Sons. London: Chapman & Hall. 1906.

An excellent translation of Ehrlich's collected studies on immunity is now available for English readers. The German edition was published in 1904, but the additional chapters bring the work up to date. One of these chapters, written by Professor Ehrlich expressly for this translation, presents a general review of the recent work in immunity, and adds materially to the value of the American edition. The volume contains forty-one papers. These give the results of the experimental studies prosecuted by Ehrlich and his students from 1898 to 1906 in the Royal Institute for Experimental Therapy at Frankfurt. The first chapters contain the classical communications of Ehrlich and Morgenroth, which were originally printed in the *Berliner klinische Wochenschrift.* Several of the papers appeared in publications not readily available to students in this country, as the *Koch Festschrift,* the *von Leyden Festschrift;* and at least one study, that on the relations between toxin and antitoxin, was issued as a separate monograph. There are a number of papers by Ehrlich's American students, Marshall and Kyes. The value of the work to the students and undergraduates is enhanced by two chapters prepared especially for it, which describe the technical details of hemolytic and bacteriolytic test-tube experiments.

We have found that these original studies are more interesting and less difficult of comprehension than the explanatory articles which have been published from time to time with the object of presenting Ehrlich's theories in a clearer and simpler manner.

Toxicology. The Nature, Effects and Detection of Poisons, with the Diagnosis and Treatment of Poisoning. By CASSIUS M. RILEY, M.D., Professor of Chemistry and Toxicology in Barnes University. Third edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co. 1906.

This is a small volume devoted to a large and comprehensive subject. The nature, effects, and detection of poisons, and the diagnosis and treatment of poisoning are all very briefly considered. The book was apparently primarily intended to be used by the students of the author; it is of no real value to the practitioner of medicine.

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the United States Pharmacopeia. A Manual of the Science of Chemistry and its Applications to Medicine and Pharmacy. By JOHN ATTFIELD, F.R.S., M.A., Ph.D., F.C.S., etc., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, etc. New (19th) edition, specially revised by the author to accord with the new United States Pharmacopeia, edited by LEONARD DOBBIN, Ph.D., F.I.C., etc., Lecturer on Chemistry in the University of Edinburgh, etc. 12mo, 760 pages, illustrated. Philadelphia and New York: Lea Brothers & Co. 1906.

Seventeen editions of this excellent work in the United States and eighteen in Great Britain are abundant evidence of approval of the professions of medicine and pharmacy, and we are pleased to welcome this nineteenth edition. The most prominent changes in the book are those necessary to make it accord to the new Pharmacopeias of the United States and Great Britain, and it has in other respects been brought up to date. We can continue to recommend the book.

Gastric Surgery. Being the Hunterian Lectures delivered before the Royal College of Surgeons of England on Feb. 19, 21 and 23, 1906. By HERBERT J. PATERSON, M.A., M.B., B.C. (Cantab.), F.R.C.S. (Eng.), Hunterian Professor of Surgery and Pathology at the Royal College of Surgeons; Assistant Surgeon to the London Temperance Hospital. New York: William Wood & Co. 1906.

This is the series of three Hunterian lectures delivered by the author in 1906, considering the operation of gastro-jejunostomy, gastric ulcer, complications of gastric ulcer, infantile hypertrophic stenosis of the pylorus and the surgical treatment of cancer of the stomach.

They are well written, for they make easy reading and contain much valuable information. The author has given an excellent bibliography of the technique of gastro-jejunostomy, and appended to the book are tables of the various gastric operations performed by the author, with their end results. The end results of these operations are what is so much needed, and we are just beginning to receive information as to the permanent value of much of the operative work constituting gastric surgery.

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THE PROBLEM OF EPIDEMIC UNCINARIASIS IN PORTO RICO.

On the evening of Feb. 6, Capt. Bailey K. Ashford, assistant surgeon in the United States army and honorary member of the Porto Rico Anemia Commission, will speak at the Boston Medical Library on the general subject of the campaign against endemic uncinariasis in Porto Rico.

The situation regarding this disease in Porto Rico has for many years been an alarming one, and although a very definite beginning has been made toward its more thorough study and prevention, it still remains a menace and demands the earnest attention of the medical profession throughout the country. In a recent paper published in *The Military Surgeon*, Captain Ashford describes the work which has already been accomplished toward combating the disease since the first definite knowledge of its ravages was brought home to those in authority in 1899. It was formerly supposed that the extraordinary death-rate from "anemia," which was from 20% to 30% of the total death-rate, was attributable to starvation or to lack of proper food. In the latter part of 1899 it was shown that this condition of anemia was the product of a definite parasite and was thereafter known as anchylostomiasis or uncinariasis. In 1902 the situation was seriously taken in hand by Dr. Walter W. King, of the Public Health and Marine-Hospital Service, and by Captain Ashford, who systematically treated a hundred of the worst cases to be found in Ponce. Gradually from this beginning public interest was excited and the problem was seriously taken up by the medical corps of the army and the Public Health and Marine-Hospital Service.

It is not our intention at this time to discuss in detail the theory of the disease or the energetic measures which have been taken to combat it. The point of importance is that it is a preventable and curable disease, and that with the proper co-operation of members of the profession, not only in Porto Rico but elsewhere, and through moral and financial support, a pest which has claimed from five to seven thousand victims yearly may be removed. Captain Ashford will speak with peculiar authority in this matter to which he has devoted much attention, and it is not to be questioned that a discussion of the disease, although somewhat remote from our own doors, will attract the attention of physicians, interested not only in the cure of disease, but also in the broad economic questions to which an endemic affection of this sort leads. Naturally the first commission which undertook the study of what was regarded as a necessary and essential evil met with difficulties and discouragement. The professional men of Porto Rico, however, have shown the greatest interest in the problem and are applying the principles which have been demonstrated as useful, and also on their own initiative are making positive headway against the widespread and fatal endemic disease. The work that these men do is self-sacrificing and arduous. They are eminently deserving of sympathy and positive assistance from their colleagues in more favored regions. It is somewhat extraordinary and altogether unfortunate that laboratory facilities, so essential to the investigation of such a disease, are wholly inadequate. The physicians are interested in microscopic work and post-mortem study, but the disadvantages under which they are working are almost prohibitive of progress. For example, the president of the Medical Association of Porto Rico, a physician of German family, although decrepit through age, is working faithfully by experimental means to determine certain important facts regarding the biology of the parasites. This investigator has no laboratory and no adequate income to prosecute his work. In spite of these drawbacks, he buys what apparatus he cannot improvise and is continuing his work with enthusiasm. Other men are in the same predicament, and even the commission appointed to investigate the disease is not provided with means to establish a laboratory to prosecute the researches which are essential to a complete understanding of the disease.

In view of these facts, Captain Ashford's re-

marks should receive the closest attention, and at least sufficient public interest be aroused to direct attention in a concerted manner toward a great medical problem, evidently capable of solution provided the necessary means can be secured. We suffer in our medical work from a concentration of interests in the immediate problems which face our individual communities. It is, therefore, eminently useful that we should from time to time be addressed by those whose duty or interests take them into wider fields.

THE CAUSE OF PORTAL OBSTRUCTION IN CIRRHOSIS OF THE LIVER.

NOT infrequently in medicine, as the result of the inquiry of a man mentally endowed with healthy skepticism, doubt is cast on some explanation hitherto unquestioningly accepted. A case in point appears to be in the explanation usually given for the increased portal pressure in cases of cirrhosis of the liver. The ascites, the distended collateral venous channels and the hemorrhages in the course of cirrhosis are facts pointing to increased resistance to the flow of blood through the portal system. The increased amount of fibrous tissue about the portal vessels within the liver is easily demonstrable. Contraction of this fibrous tissue with consequent narrowing of the blood vessels is the next step in explaining the portal obstruction, which frequently accompanies cirrhosis. The explanation is logically satisfying and has been accepted without question as to whether the blood actually does meet with resistance in its flow from the portal vein through the cirrhotic liver.

It has remained for Herrick [1] to test this point. By washing the vessels free from blood and circulating salt solution through them, Herrick finds that in the cirrhotic liver the portal vessels permit as free a flow as in the normal, and that the portal capacity in proportion to the size of the liver is increased rather than decreased.

How, then, is the fact of the increased portal pressure of cirrhosis to be explained? In the normal liver, Herrick shows that changes in pressure in the hepatic artery from 0 to 130 mm. of mercury cause a rise of but 3 or 4 mm. in portal pressure, while, on the other hand, in the cirrhotic liver there is a rise of pressure in the portal vein of 20 or 30 mm. This is due to the greater influence of the arterial circulation on the venous brought about by an increased arterial supply to the fibrous tissue of the cirrhotic liver and a freer arterio-portal anastomosis. Portal obstruction in cirrhosis, then, according to Herrick, is not caused by obstruction to portal vessels within the liver consequent upon the contraction of newly formed fibrous tissue, but is due to changes in vascularization, which result in arterial pressure abnormally influencing portal pressure, and by raising it this leads to portal engorgement and the obstructive circulatory symptoms of cirrhosis.

[1] Jour. of Exp. Med., 1907, ix, 93.

MEDICAL NOTES.

PHYSICIANS AMONG TWELVE GREATEST LIVING GERMANS. — A vote taken in Germany on the twelve greatest living Germans is reported to have included the following men, who occupied respectively the third, fourth, fifth and eleventh positions in the list: Dr. Robert Koch, Prof. Ernst Haeckel, Prof. Konrad Röntgen and Prof. Ernst von Behring.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION PRIZE. — At the last meeting of the Mississippi Valley Medical Association it was decided to offer a prize of $100 for the best essay on some medical or surgical subject. The competition is to be limited to those who, at the time of entering the competition, as well as at the time of the award, shall be members in good standing of the Mississippi Valley Medical Association. The name of the author is to be inclosed in a sealed envelope bearing some motto or device, and the essay is to be marked by the same motto or device. The name of the successful author and the title of his essay will be announced at the next meeting of the Association, to be held in Columbus, Ohio, Oct. 8, 9, 10, 1907, and the award will be made at that time. All essays must be typewritten, and are to be sent to the secretary, Dr. Henry Enos Tuley, 111 W. Kentucky Street, Louisville, Ky., on or before Aug. 1, 1907, after which date no essay will be received.

TRIBUTE TO PROFESSOR VON BERGMANN. — On Dec. 16 Dr. Ernst von Bergmann, professor of surgery in the University of Berlin, was seventy years old. On that occasion he was the recipient of many honors. Forty delegations are said to have called upon him, representatives of universities, the Red Cross, medical societies and the government. At a dinner given in his honor more than five hundred distinguished persons were present. Professor von Bergmann's life has been peculiarly active, not only in his professional work, but also in other matters of a social

and artistic sort. Professor von Bergmann's services have extended through three wars. In 1882 he was called to the professorship of surgery in the University of Berlin and has remained there since.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Jan. 30, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 53, scarlatina 63, typhoid fever 4, measles 11, tuberculosis 44, smallpox 0.

The death-rate of the reported deaths for the week ending Jan. 30, 1907, was 21.99.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Jan. 26, 1907, was 239, against 212 the corresponding week of last year, showing an increase of 27 deaths and making the death-rate for the week 20.70. Of this number 142 were males and 97 were females; 235 were white and 4 colored; 132 were born in the United States, 96 in foreign countries and 11 unknown; 51 were of American parentage, 152 of foreign parentage and 36 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 67 cases and 4 deaths; scarlatina, 77 cases and 3 deaths; typhoid fever, 2 cases and 2 deaths; measles, 13 cases and 0 deaths; tuberculosis, 40 cases and 21 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 32, whooping cough 1, heart disease 40, bronchitis 6 and marasmus 1. There were 14 deaths from violent causes. The number of children who died under one year was 28; the number under five years 43. The number of persons who died over sixty years of age was 82. The deaths in public institutions were 71.

There were 2 cases and 2 deaths reported from cerebrospinal meningitis during the week.

Superintendent of School and Hospital for Crippled and Deformed Children. — It is announced that Dr. J. E. Fish, of Melrose, has received the appointment of superintendent of the new School and Hospital for Crippled and Deformed Children now building at Canton.

Death of an Army Nurse. — The death of Miss Elizabeth J. Dudley, of Jamaica Plain, at the age of seventy-nine, is announced. She served as nurse during the Civil War at the Military State Hospital at Manchester, N. H.

Pure Milk. — Dr. Charles Harrington, secretary of the State Board of Health, at a public lecture given Jan. 27, at the Harvard Medical School, expressed in no uncertain language facts regarding the procuring and storing of milk in the immediate neighborhood of Boston. He pointed out the filthy conditions under which a large portion of this essential food product is obtained, illustrating his remarks by lantern slides. The recent prevalence of scarlet fever was considered due to tainted milk. Such lectures should have a salutary effect in arousing public opinion.

Meeting of Health Officials. — About one hundred health officers from various parts of Massachusetts held their quarterly meeting at the Hotel Brunswick last week under the organization of the Massachusetts Association of Boards of Health. Dr. S. H. Durgin, of the Boston Board of Health, presided. Papers were read by Dr. J. W. Proctor, medical inspector for the State Board of Charity, on "Leprosy in Massachusetts," and by Dr. Austin Peters, State Cattle Commissioner, on "Rabies and Practical Methods of its Suppression."

Graduation of Nurses, Massachusetts General Hospital. — Graduating exercises were held in the new out-patient building of the Massachusetts General Hospital on the evening of Jan. 24 for a class of twenty-eight nurses, twenty three at the hospital in Boston and five completing their studies in New York. The Rev. John Hopkins Dennison made the chief address of the evening; Miss Dolliver, head of the training school, reported on the condition of the school, and Dr. H. P. Howard, superintendent and resident physician, also made brief remarks. The attendance was in the neighborhood of two hundred.

NEW YORK.

Diet Kitchen. — The annual meeting of the New York Diet Kitchen was held on Jan. 16. During the year over 200,000 patients, recommended by 33 hospitals, dispensaries and charitable organizations, have been the recipients of food supplies. On this occasion the principal address was made by Commissioner Thomas Darlington, who spoke particularly of the great improvement in the character of the milk supply of the city, which had in the last few years been effected by the work of the Health Department.

Education of Defective Children. — At a meeting of the Board of Education, held Jan. 9, a committee appointed last March, on the recom-

mendation of Superintendent Maxwell, to investigate the feasibility of undertaking the education of the crippled, blind and deaf and dumb children of the city, submitted its report. This stated that the management of the East Side Crippled Children's School, in Montgomery Street, and the Madison Avenue School for Cripples had already been assumed by the Board of Education, and that there were several other similar institutions which it was desirable to have placed under the control of the board as soon as the trustees of these were willing. "If the state is under obligation and considers it good policy to educate a normal child," the report went on to say, "much more is it under obligation to educate as far as possible children who, at best, are a great burden upon their parents. The effort should be made to make these children happy, helpful and self-supporting. In the section lying east of the Bowery and south of Eighth Street, 672 deaf and dumb children have been found. It is probable that there may be 2,000 or more such unfortunate children in the city who are entitled to as much of an education as they are capable of receiving."

MOUNT SINAI HOSPITAL. — The annual meeting of the managers of the Mount Sinai Hospital was held on Jan. 13. The report of the secretary showed that out of 10,543 patients admitted during the past year, 4,713 were treated free. There were 647 private patients. The consultations in the dispensary department numbered 158,295. The total receipts of the year amounted to $347,839.84, and the expenses to $356,722.63 and the deficit of less than $9,000 was paid from cash in hand.

PREVENTION OF TUBERCULOSIS CHARITY ORGANIZATION SOCIETY. — The committee on the prevention of tuberculosis of the Charity Organization Society has just issued its annual report. While lamenting the fact that the attitude of the public generally towards the matter is still one of indifference, the committee expresses the hope that great and lasting benefit will result from the tuberculosis exhibitions which have been held, and are to be repeated, in New York and other cities. The report, in appealing to the public, says: "We seek your co-operation in carrying out a systematic and organized campaign of education, the object of which is to prevent the ravages of tuberculosis, a preventable disease, each year costing the state 14,000 lives and at least $30,000,000."

SANITARIUM FOR HEBREW CHILDREN. — The annual meeting of the Sanitarium for Hebrew Children, a Jewish fresh air charity, was held on Jan. 20, and the secretary's report showed that in the past season over 20,000 children and mothers had received treatment and care at the sanitarium at Rockaway Park, on the seashore and on the all-day boat trips. It was further reported that the new addition, a building with a capacity of about 175 beds, had been completed, at a cost of $41,000.

ALUMNI ASSOCIATION OF THE ALBANY MEDICAL COLLEGE. — The twelfth annual dinner of the Greater New York Alumni Association of the Albany Medical College was held on Jan. 24, with Dr. Maurice J. Levi presiding as toastmaster. Among the speakers was James W. Osborne, ex-assistant district attorney, who took occasion to speak in very high terms of the expert medical witness, stating that he was the most truthful man with whom he had had anything to do in the twelve years of his experience as a public prosecutor in New York. "There is a notion," he said, "which has impressed itself upon the mind of the general public to the effect that the expert medical witness is of little value because of the fact that he often disagrees with the medical man on the other side; and it certainly is true that he does not often agree with the physician on the other side except as to questions of fact. A hypothetical question is put to an expert witness by the lawyers for one side based upon a line of testimony favorable to that side, and another hypothetical question is put to another physician which is based upon a line of testimony favorable to the opposite side. The two physicians disagree as to their findings, but not as to their medical science, and it is for the jury to decide which hypothetical question was the proper one. I have always found that expert testimony was reliable. In fact, it seems to me impossible for a physician to tell an untruth when he has against him another physician who is competent."

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. JAN. 12, 1907.

1. *ORTON, S. T., LOCKE, E. A. *The Pathologic Findings in Two Fatal Cases of Mycosis Fungoides.*
2. GOTTHEIL, W. S. *Endothelioma of the Skin.*
3. *TAYLOR, A. S. *Results from the Surgical Treatment of Brachial Birth Palsy.*
4. HALL, J. N., HOPKINS, S. D. *Landry's Paralysis.*
5. BYINGTON, J. F. *The Submucous Resection of the Nasal Septum.*
6. HURD, L. M. *The Submucous Resection of the Nasal Septum.*

7. Myles, R. C. *Subperichondrial and Subperiosteal Operations on the Nasal Septum.*
8. *Novy, F. G. *Trypanosomes.*
9. Peckham, F. E. *Treatment of Fractures of the Neck and Shaft of the Femur.*
10. Smith, M. A. B. *Treatment of Lobar Pneumonia.*
11. *Ford, J. H. *The Antitoxin Treatment of Tertian Malarial Infections.*

1. Orton and Locke describe two cases of mycosis fungoides with pathologic examination of the growths. In one case the cell type was that of a small round-cell sarcoma, but a comparison with other skin sarcomata showed these to have their origin deeper in the corium and pushing up a thin layer of connective tissue beneath the epidermis. In mycosis, on the other hand, the infiltration begins just beneath the epidermis and progresses both downward and upward. Melanotic sarcomata have a distribution and growth like mycosis. Syphilitic and tubercular skin lesions have an appearance not unlike the tumors in the fungoid stage, except that the infiltration suggests more a passive condition than an active invasion. In the second case, the tumors had disappeared, leaving only indurations when examined, and the histologic structure was that of a chronic inflammatory change. Inoculation experiments in the other case were negative.

3. Taylor has found, both experimentally and in a pathologic case that occurred under his observation, that the cause of brachial birth palsy is overstretching the roots of the brachial plexus which give way from above downward. This over-tension is caused only by pulling the head and shoulder away from each other, *i. e.*, pulling on the shoulders to deliver the after-coming head in breach cases, or pulling on the head when the shoulders are obstructed in vertex cases. As a result of this overstretching, there is a cicatrization, compressing the nerve fibers and preventing the transmission of impulses. This is not necessarily all in one mass, but may be distributed in several foci, a fact important to remember, since all the cicatrices must be removed to secure the best result. The after consequences are contractures producing the characteristic deformity and insufficient development of the bones. The only way to re-establish nerve conduction is to excise the cicatricial area and to make an end-to-end suture of the nerves. A comparatively early operation is needed to avoid undesirable deformity, and massage before and after operation is indicated for this purpose. Between six and two months would seem to be the proper time to operate, as the lesion is then well located; further experience may suggest even an earlier date. The damage to nerve roots in the order of severity is from above downward. The suprascapular is always damaged, and, as it controls the external rotators of the humerus, it should be carefully sutured to a good proximal nerve stump. The technique of the operation is fully described. Such post-operative palsies as may occur are soon recovered from. The article is fully illustrated.

8. Novy describes the organisms that go under the name of trypanosomes, gives what is known of their life history and transmission through insects, etc., and describes the diseases they produce. He does not accept Koch's views of the specific unity of many of the pathogenic trypanosomes, but recognizes eight pathogenic species for mammals, including the kala azar organism, the generic relations of which seem to be somewhat in doubt. Only two of these are pathogenic for the human species, the Tr. gambiensis, which causes the African sleeping sickness, and the Tr.? (Piroplasma) donovani, responsible for the kala azar disease of India, but these are formidable enough. The most formidable trypanosome infection of the domestic animals, the tsetse fly disease of South Africa, has become a much less serious matter since the extermination of most of the wild game of that region that harbored the parasite, the fly itself being only the passive carrier of germs. It is probable also, in Novy's opinion, that the same is true of the Glossina palpalis, the biting fly that transmits the germ of sleeping sickness which has lately depopulated whole regions of eastern Africa. The treatment of the severer forms of trypanosome disease, including those affecting man, is very unsatisfactory. Encouraging results, however, have been obtained with aniline dyes and arsenic in monkeys affected with sleeping sickness, though, save in one case reported by Dutton and Todd, treatment has been ineffectual so far in the human species. The paper is fully illustrated.

11. Ford reports the results of experiments made with the serum treatment of malaria. The animals employed were monkeys, indigenous to the Philippines, and goats, which were repeatedly inoculated with defibrinated human blood containing Plasmodium vivax. Of 20 patients suffering with benign tertian infection and treated by injections of defibrinated blood of these animals or of serum from the inoculated goats, 17 recovered without further medication, while 3 were apparently unaffected by the injections. Two cases of the quartan type were also uninfluenced, and the same method was later tried with 5 cases of estivo-autumnal fever, also with negative results. It would seem, therefore, that these experiments bear out Koch's opinion that immunity from one malarial parasite does not confer immunity against the other types. Control cases were observed which confirmed the results of the experiments, showing a very small proportion recovering spontaneously from the benign form and no results from the injections of normal goat serum. It would appear from this study that the successive inoculations of monkeys or goats with blood containing the Plasmodium vivax gives rise in those animals to an antitoxin which, when injected in adequate doses in human beings, may be followed by disappearance of the parasites from the circulation and disappearance of the symptoms of malaria. The antitoxin has apparently no effect on infections by other varieties of the malarial parasite than that from which it was derived. Ford suggests the advisability of similar studies in the case of yellow fever, especially in view of the observation of Marchoux and Simond that a temporary relative immunity can be conferred by the injection of the serum of a convalescent from yellow fever. An antitoxin for yellow fever might have a more definite value than one for malaria, since natural immunity is usually produced by a single attack of the former disease, while in malaria it develops much more slowly and with less certitude.

The American Journal of the Medical Sciences. January, 1907.

1. *Mayo, W. L. *Principles Underlying the Surgery of the Stomach and Associated Viscera.*
2. *Thayer, W. S., Fabyan, M. *Paravertebral Triangle of Dulness in Pleural Effusion (Grocco's sign).*
3. Ashton, T. G., Norris, W., Lavenson, R. S. *Adams-Stokes Disease (Heart Block) Due to a Gumma in the Interventricular Septum.*
4. *Janeway, T. C. *The Pathological Physiology of Chronic Arterial Hypertension and Its Treatment.*
5. *Hamill, S. McC., and Le Boutillier, T. *Inorganic Late Systolic Pulmonary Murmurs in Infancy and Childhood.*
6. *Cushing, A. R., and Edmunds, C. W. *Paroxysmal Irregularity of the Heart and Auricular Fibrillation.*
7. Futcher, T. B. *Hemochromatosis with Diabetes Mellitus.*
8. *Riesman, D. *Acute Pulmonary Edema, with Special Reference to a Recurrent Form.*
9. *Lavenson, R. S. *The Nature of Aplastic Anemia and Its Relation to Other Anemias.*
10. Sailer, J., and Farr, C. B. *Studies in the Natural and Artificial Inhibition of Peptic Digestion.*
11. Eisendrath, D. N. *Acute Unilateral Septic Pyelonephritis.*
12. Adler, H. *Gastric Ulcer in Childhood.*

1. Mayo discusses the bearing upon gastric surgery of facts of "living pathology" as observed by himself in the course of operations and as revealed by the results of laboratory experimentation. He summarizes the process of digestion and absorption, mentioning particularly the absorption of solid elements of food by the jejunum and ileum, the absorption of water by the large intestines and cecum, the storage function of the cardiac portion of the stomach and the grinding function of the antrum. Gastric ulcers are in 80% of the cases prepyloric, situated in the antrum. Duodenal ulcers are more frequent than is generally recognized, forming 40% of all peptic ulcers. Cancer of the stomach occurs in the same position as ulcer,

and in 54 of 134 operated cases was found to have originated in the margin of an ulcer. The lymphatic glands of the stomach lie along the whole length of the lesser curvature, but only in the pyloric region of the greater curvature; thus in radical operations for cancer, even of the pylorus, the whole of the lesser curvature must be removed, whereas much of the greater curvature may be saved. The functions of the stomach are under reflex control, partly nervous, especially through the sympathetic system, and partly myogenic. Various causes may produce reflex disturbances of function which are not to be treated surgically. Pyloric spasm is a disorder of this class which has been observed in operations under local anesthesia, with symptoms simulating gastric ulcer. The contents of the fasting stomach are relatively sterile, but bacteria may easily descend from the mouth. Therefore care of the mouth is advocated. In peritonitis cases, elevation of the head and chest, so as to cause discharges to gravitate to the pelvis, has given remarkable diminution of mortality. The article contains many other such observations which cannot be included in this abstract.

2. Thayer and Fabyan summarize the literature upon the paravertebral triangle of dulness in pleural effusion, and report their own findings in 32 cases. This triangle of dulness, first described by Grocco in 1902, is found in cases of pleural effusion filling the angle between the vertebral column and the base of the lung *on the unaffected side*. Its third boundary is formed by a line which extends from the vertebral column at about the level of the upper border of the effusion downward and outward to the base at a variable distance from the median line. Most observers have confirmed the diagnostic value of this sign. The cause of the dulness is either pressure of the fluid against the vertebræ, or displacement of the contents of the posterior mediastinum. In the author's 32 cases the triangle of dulness was distinct in 30, indistinct in 1 case of small effusion and absent in 1 case of interlobar empyema. In the triangle there may be suppressed voice, egophony and coin sound. The dulness diminishes or disappears when the patient lies on the side of the effusion. The triangle is usually larger in the presence of right-sided effusions. It is concluded that the sign is remarkably constant and characteristic of fluid in the pleural cavity.

4. Persistent high blood-pressure, according to Janeway, in addition to its frequent occurrence, as is generally understood, in nephritis and in arteriosclerosis, occurs also in a clinical group of cases in which there is no evidence of renal involvement. Of 130 cases with systolic pressure of over 200 mm., 13% belonged in this category. The mechanism by which hypertension is produced is uncertain, but it seems probable that it is a compensatory process in renal insufficiency, tending to increase the flow of blood through the kidney, and in the cases of unknown origin possibly an effort to supply more blood to the brain. The preventive treatment of the condition is the treatment of chronic nephritis and of arteriosclerosis. To relieve symptoms when the disorder exists, digitalis and allied drugs are the chief reliance, in spite of high blood-pressure, since symptoms are due mainly to failure of the left ventricle. In emergencies the vasodilators (nitroglycerin, etc.) and venesection are useful. In cases with severe abdominal pain and headache, morphine has a strikingly beneficial effect. Hypertension, however, without symptoms, is no more to be attacked therapeutically than a heart murmur.

5. Hamill and Le Boutillier call attention to the fact that although most textbooks on pediatrics state that functional heart murmurs are rare in children, such murmurs are extremely common, especially late systolic murmurs audible in the pulmonic region. In eighty institutional children showing no manifestations of disease, this murmur was heard in 66%.

6. Cushing and Edmunds report a case of paroxysmal arrhythmia with marked acceleration of the heart. It is shown that the irregularity is due to irregular discharge of impulses and not to defects in the contraction of the ventricle, which appears to respond to impulses received. A similar form of irregularity in the dog's heart is described, observed under morphine anesthesia with the thorax opened. This is shown to be due to the ventricles receiving irregular stimuli from the auricle, which is in a state of fibrillation. This form of arrhythmia occurs in dogs occasionally from peripheral irritation, and it is probable that this gives rise to reflex inhibition of the vagus center, which causes auricular fibrillation. The suggestion is made that in the patient described the arrhythmia was due to auricular fibrillation from inhibition of the vagus center.

8. Riesman calls attention to the importance of acute pulmonary edema, a disorder which has not received sufficient recognition. It comes on rapidly without any apparent exciting cause and is often fatal. Recovery is frequent, but there is a marked tendency to recurrence. Of the clinical causes, arteriosclerosis and cardiac and renal disease are the most important. In its production vasomotor disturbances and a disproportionate activity of the two ventricles are the chief factors. The principal symptoms are agonizing dyspnea, cyanosis, cough, expectoration of a frothy, albuminous fluid, and profound prostration. Over the lungs, especially in the upper portions, the characteristic moist râles of edema are heard. The most valuable remedies are bleeding, dry cupping and cardiac stimulants.

9. Lavenson has collected ten cases (one original) of the disease described as aplastic anemia. This disease, he concludes, is a variety of pernicious anemia, but is distinguished by the following characteristics: rapidly fatal course, low color index, absence of megaloblasts and usually of normoblasts. At autopsy the bone-marrow is not red as in pernicious anemia, but is intensely pale and fatty, and shows no signs of blood regeneration.

THE LANCET.

JAN. 5, 1907.

1. BLAND-SUTTON, J. *Removal of the Gall Bladder. (Cholecystectomy.)*
2. *SALAMAN, R. N. *The Pathology of the Liver in Cardiac Disease and its Clinical Lessons.*
3. CLARKE, W. B. *Intraperitoneal Bleeding from a Uterine Fibroid, with Acute Distention of the Abdomen; Abdominal Section; Removal of the Fibroid; Recovery.*
4. KIDD, F. S. *Hyperplastic Tuberculous Pericolitis.*
5. CATTLEY, R. *The Localization of Potassium in Malignant Tumours.*
6. DIMMOCK, A. F., and BRANSON, F. W. *Some New Methods for the Determination of Uric Acid, including a Simple Clinical Process.*
7. *BOX, C. R. *Bronchiectasis in Childhood, with Some Observations on the Condition Known as Honeycomb Lung.*
8. BENNION, J. M. *Some Observations on the Treatment of Epilepsy in the Insane with Strontium Bromide.*
9. BEALE, J. F. *An Outbreak of Typhoid Fever due to Eating Clams from a Polluted Source.*
10. BOSTON, L. N. *Absence of the Uterus in Three Sisters and in Two Cousins.*
11. KOIKE, P. *A Short Review of the Results Achieved by the Japanese Army Medical Service during the Russo-Japanese Campaign of 1904–05.*

2. From histological examination of over sixty cases, Salaman divides the lesions of the liver in cardiac disease into three classes: (1) Engorged liver. (2) Nutmeg liver, where there has been a prolonged course of back pressure of more or less equable degree. Such livers show some distention, more or less fat, and always some fibrosis. (3) The cirrhotic nutmeg liver. Here fibrosis, portal, hepatic and central, is found strongly developed. From a series of experiments on livers normal and otherwise as to how much water they would hold at given pressures, he concludes: (1) That under conditions of cardiac stress the liver will draw off a large volume of blood from the right auricle; but (2) that often chronic fibrous changes take place which lessen this capacity, and (3) by increasing the force of the liver's recoil, prevents its use as a reservoir in which blood may accumulate. (4) In complete compensation there is no engorgement or back pressure. (5) While the liver may act as a sponge safety-valve to the heart, continued use of this safety-valve action leads to its own abolition. In connecting these facts and clinical observations, especially as regards ascites, he puts this

last into two classes: (1) Associated with acutely engorged livers of type 1, fluid bloody, small in amount and often associated with hemorrhages and congestion of the intestines, and (2) large in amount, clear, of low specific gravity, associated with the cirrhotic type of liver. He believes the liver to be a factor of the greatest importance in formation and course of ascites in cardiac disease, but not the only factor.

7. Box believes that the so-called honeycomb lung found in children and less often in adults may be due (1) to a true bronchiectasis; (2) a dilatation of the atria beyond the bronchi, atriectasis, or (3) focal areas of necrosis of lung tissue due to bronchopneumonia in childhood. The original process he believes in nearly every case to be a bronchopneumonia, and that these honeycomb lungs are the real antecedents of the cases of chronic bronchiectasis of later life. In some cases, where the inflammatory process has subsided, a diagnosis of honeycomb lung is impossible during life; in others the signs and symptoms are those of bronchopneumonia; while in still other cases there is retraction of the lung and of the heart to that side, clubbing of the fingers with cough, profuse expectoration, dyspnea, etc. The general nutrition is often good, and repeated examinations of sputum show no tubercle bacilli; cases are often called tuberculous notwithstanding; others, especially when the cavities are not draining properly, are mistaken for empyema. Signs in the lungs vary greatly as the cavities are full or empty. Routine emptying of the cavities by inverting the patient night and morning should be employed. Creosote and other antiseptics give good results. Surgical intervention is not wise.

British Medical Journal.
Jan. 5, 1907.

1. Cheyne, W. W. *The Treatment of Recent Fractures.*
2. *Collier, W. *Functional Albuminuria in Athletes.*
3. Calwell, W. *Age Incidence of Gastric Ulcer in the Male and Female.*
4. Bond, J. W. *Preliminary Laryngotomy.*
5. Butlin, H. T. *Preliminary Laryngotomy.*
6. Snell, S. *An Inquiry into the Alleged Frequency of Cataract in Bottle Makers.*
7. Rankin, R., Mackay, E. C., Lunn, J. R., Cranke, J. *Achondroplasia, with Notes on Cases.*
8. Robinson, H. B. *On the Use of Taxis for Hernia and on Some Complications that May Arise during and after its Employment.*
9. Graham, G. H. *Fracture of the Fifth Metatarsal Bone.*

2. In an examination of the urine of 156 men training for boat races, Collier found albumin in the urine in 57%. After a hard, tiring row every member of the university crew showed albumin. He believes that just as a certain amount of cardiac hypertrophy is normal in athletes, so is a certain amount of physiological albuminuria. He does not consider it necessary to cut down on the exercise as long as the general health remains good.

The Practitioner.
January, 1907.

1. Allbutt, T. C. *Influenza.*
2. Powell, R. D. *A Note on Some Clinical Aspects of Influenza.*
3. *Broadbent, W. *Note on the Therapeutics and Prophylaxis of Influenza by Quinine.*
4. Duckworth, D. *A Note on a Possible Source of Influenza.*
5. Moore, J. *Thoughts on Influenza.*
6. *West, S. *Some General Considerations on Influenza.*
7. *Mackenzie, H. *The Respiratory Complications of Influenza.*
8. Thomson, St. C. *Influenza as it Affects the Nose and Throat.*
9. *Dalton, N. *Influenza in Relation to the Digestive Organs.*
10. *Armour, D. *Influenza and Appendicitis.*
11. *Cowan, J. *Cardiac Complications of Influenza.*
12. *Harris, W. *The Nervous System in Influenza.*
13. *Shaw, T. C. *The Psychoses of Influenza.*
14. Lyle, H. W. *Ocular Manifestations Accompanying Influenza.*
15. *Cheatle, A. H. *The Aural Complications of Influenza.*
16. Emery, W. D. *The Micro-Organisms of Influenza.*
17. Newsholme, A. *Influenza from a Public Health Standpoint.*

3. Broadbent has found quinine to be the best remedy for influenza. In fulminating attacks, quinine hydrobromate subcutaneously has proved of great value. During any epidemic he orders 2 gr. of quinine to be taken every morning as a prophylactic measure. His results under this treatment have been very good.

6. West discusses the disease from a general point of view, with especial reference to the history of its epidemics. The post-febrile depression following an attack is very characteristic and one of the most distressing symptoms, requiring very careful treatment. Its effect on the heart shows itself in two forms as regards pain,—one a simple neuralgia, distressing but not serious; the other a real angina, often occurring in the young, of a very serious import, leaving the heart for months afterwards in an absolutely crippled condition, but with ultimate complete recovery.

7. The mucous membrane of the trachea is especially liable to infection by the influenzal organism, giving rise to hoarseness and a distressing, hacking cough which may last for months. There are usually small areas of consolidation, which often eventually give rise to abscesses or bronchiectasis. Lobar consolidation is not infrequent; in these cases resolution is slow; at the bases of the lungs there are often heard sticky râles. These are especially characteristic. Pneumonia is met with as a complication in 5% to 7% of cases and is fatal in from 17% to 43.9%. The patient should be put to bed at once with windows wide open and the temperature not more than 62°. The writer mentions various drugs, but lays special emphasis on the value of fresh air and proper hygiene.

9. Although many cases of abdominal "grippe" have been reported, it is extremely difficult and even impossible to prove that the condition is definitely due to the influenza bacillus. There are, however, in certain influenza attacks, various symptoms related to the gastro-intestinal tract, such as loss of appetite, nausea and vomiting. In other cases the attack may seem to be entirely directed at the alimentary tract. In these cases the organism is probably in the blood and acts directly, or through its toxins, on the stomach and intestines. There may be a simple catarrh or an inflammation simulating typhoid, cholera or ulcerative colitis. Dalton gives illustrations of these various types. The treatment is usually expectant; both antipyretics and purgatives must be used with caution.

10. In every epidemic of influenza there seems to be a large increase in the number of cases of appendicitis; the complication occurs during or shortly after the attack of grippe. This fact is probably due to the lowering of resistance of the intestinal mucosa by the toxins of the influenza organism, thus increasing the chances for the development of an attack of appendicitis.

11. Endocardial and pericardial complications are rare in influenza; it is the myocardium which is oftenest attacked. The danger from this condition is immediate and not remote as in rheumatism. In those previously healthy, cardiac symptoms are not alarming, but in fat people and in alcoholics they may prove serious. Strychnia is the important drug; alcohol is often useful, but large doses are dangerous.

12. Next to diphtheria there is no acute disease which affects the nervous system so severely as does influenza, and there is no other disease which has such varied nervous sequelæ. This very fact may lead to error by attributing too many nervous phenomena to an invasion of Pfeiffer's bacillus. At the onset of the disease the chief symptoms are those of the nervous system, pain,—neuralgia, cramps, and headache. A very severe frontal headache accompanied by pain in the back of the neck and at the back of the eyeballs is almost pathognomonic of influenza. Sudden syncopal attacks are apt to occur at the outset; tachycardia and dilatation may develop. Various ocular complications have been recorded,—optic neuritis, retinitis and even meningitis. Paralysis of one or more of the eye muscles sometimes occurs, and occasionally complete temporary blindness. Myelitis, herpes

zoster, multiple neuritis, and numerous other complications are alluded to.

13. Shaw discusses the psychoses following influenza, quoting from the various authorities on the subject and giving illustrative cases. Melancholia is the chief form, occurring twice as often as all other forms put together. The mental disturbance usually shows itself immediately after the acute influenzal attack; if treated properly, as its importance demands, the prognosis is good; if neglected, the condition may become an obstinate and serious one. In Paris, in 1889, the percentage of suicides increased 25%, probably owing to the post-influenzal depression so prevalent.

15. Influenza may attack the middle or the internal ear. The middle ear infection is due to a direct extension through the Eustachian tube and may be suppurative or catarrhal. The catarrhal forms are acute or chronic and are not especially characteristic; the suppurative forms, however, are of extreme violence, sometimes leading to rapid destruction of bone. In most cases recovery is rapid. Antral empyema, mastoiditis and meningitis may result, or the pus may burrow under the fascia deep into the neck. Involvement of the internal ear is due to an extension from the middle ear. Treatment in all cases should be vigorous and prompt.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 1. JAN. 3, 1907.

1. *FRÄNKEL, A. *The Treatment of Pleuritic Effusions.*
2. JÜRGENS. *Diseases Resembling Typhoid.* (Continued article.)
3. PELS-LEUSDEN. *Tumors of Tendons in Children.*
4. *LANDOIS, F. *Chronic Tuberculous Meningo-Encephalitis.*
5. PFISTER, M. *The Internal Treatment of Appendicitis.*
6. *BLEIBTREU, M. *The Influence of the Thyroid Gland on the Development of the Embryo.*
7. JACOBI, C. *The Mechanical Effect on Human Beings of Lowering of the Atmospheric Pressure.*
8. PICK, A. *Acoustic and Optic Motor Sequels of Convulsions.*
9. *ENGEL, K. *Injurious Effects of the X-ray Resulting from its Use as a Therapeutic Measure.*
10. COHN, P. *A Case of Para-urethral Gonorrhea.*
11. LAQUEUR, A. *Oxygenated Baths.*

1. Fränkel devotes most of his article to the consideration of when and how to tap in pleuritic effusions. In every case aspiration should be preceded by an exploratory puncture with an ordinary hypodermic syringe, but with a somewhat longer needle than that usually provided. This serves the purpose of localizing the spot where fluid can be obtained, and saves unnecessary pain to the patient and possible laceration of the lungs. It is well to wait a day or two before proceeding to aspiration, as occasionally after exploratory puncture the fluid becomes absorbed; the reason for this is not known. For the diagnosis of encapsulated effusions, the exploratory puncture is indispensable. For aspiration, the old Potain apparatus is the most convenient, but siphonage is usually satisfactory and is less expensive. Fränkel advises aspiration in all cases as soon as the fluid reaches the spine of the scapula behind or the third rib in front; also in lesser effusions which show no tendency to become absorbed. An injection of morphine should be given before the operation to prevent cough. It is better never to remove more than two and one-half liters (quarts) at one sitting. The aspiration is to be stopped at once if paroxysmal cough or pain in the chest occurs, or if the pulse becomes weak; a neglect of this precaution may be followed by edema of the lungs with albuminous expectoration. Aspiration favors the absorption of the remaining fluid, probably because it removes the pressure from the lymph vessels; it also causes active hyperemia of the pleura, which probably aids in overcoming the inflammatory process. Absorption may be facilitated by the use of diuretin or potassium acetate, but these drugs are effective only after thoracentesis. Salicylates have never in Fränkel's experience exerted any effect on the effusion, but they may be tried in rheumatic cases. In convalescence, breathing exercises and outdoor life are recommended as a means to expand the lungs and stretch adhesions. [Early tapping in smaller effusions probably hastens recovery and can do no harm.]

4. Landois reports a case in which there was a localized chronic tuberculous meningitis which gave rise to epileptiform convulsions, and was apparently cured when the patient suffered a fall on the back of the head. Soon after this fall, the man developed symptoms of meningitis, of which he died seven weeks after the injury. The autopsy showed a chronic fibroid process localized in the parietal region of one side, apparently nearly healed. As the cause of death, there was found a fresh miliary tuberculosis of the meninges. The writer assumes that the trauma lighted up the old focus in the brain, and thus was the occasion of the fatal outcome.

6. Bleibtreu and Nerking have found by experiments on rabbits that the ingestion of thyroid extract causes sterility, or death of the fetus. In a few cases the embryos were found much diminished in size and shrunken, as if in the process of absorption. Similar results have been obtained by the use of x-rays, and of injections of cholin. It has been shown by Nerking that thyroid extract splits up mucin, and it is possible that the deleterious effects of thyroid extract on the embryos is due to its action on mucin, a substance necessary to the building up of the growing organism.

9. The injurious effects of the x-ray may be considered under two heads: (1) Those due to its direct action, such as dermatitis, atrophy of the testis and ovaries; and (2) toxic symptoms, especially fever, diarrhea, prostration, acute nephritis, and a rapid fall in the number of red cells. In several cases the use of the x-ray in leukemia has been followed by these symptoms and death has resulted in a short while. They are probably due to toxins set free by the destruction of leucocytes. Sudden death has also occurred in some cases, for which no other cause could be assigned than the x-ray. Great caution is, therefore, necessary in the use of the x-ray, for some patients are much more susceptible than others. Cases of leukemia should not be treated indefinitely after improvement has taken place, but the use of the x-ray should be omitted for a while and the patient kept under observation.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 1. JAN. 1, 1907.

1. PFAUNDLER, M. *The Nature and Treatment of Disturbances of Nutrition in Infancy.* (Continued article.)
2. SOLTMANN, O. *The Infant Mortality in Hospitals.* (Continued article.)
3. *SCHLOSSMANN, A. *Statistics on Infant Mortality in Their Relation to Prophylaxis.*
4. *ESSER. *A Consultation Station for Mothers, and the Distribution of Milk for Infants in Bonn.*
5. DOERFLER, H. *The Care of Infants in Weissenburg.*
6. FRAENKEL, C. *The Demonstration of Toxin in the Blood in Diphtheria.*
7. *KLAPP, R. *Air Massage.*
8. KRAUSS, W. *The Relations of the Orbit to the Pterygo-Palatine Fossa.*
9. BURKHARDT and POLANO. *Filling the Bladder with Oxygen to Facilitate Cystoscopy and Radiography.*
10. KROMAYER. *The Treatment of Gonorrheal Posterior Urethritis by the General Practitioner.*
11. ISEMER. *Two Cases of Aural Vertigo Cured by Operation.*
12. MANN, A. *The Treatment of Hemorrhages from the Stomach and Intestine by Means of Gelatin.*

3. Schlossmann points out that the reduction of the infant mortality, which equals 25% in some parts of Germany, can only be accomplished by a study of the local conditions in each city. A more thorough instruction of students in pediatrics will accomplish something; most important are an extension of the practice of breast feeding and the providing of pure milk for the poor. A good deal may be expected from trips into the country during the hottest part of the summer, if carried out on a large scale.

4. Esser describes the consultation station for mothers in Bonn, which is modeled on the well-known *Consultations des Nourissons* in Paris. It is required that all infants who are boarded out shall be brought here once a

month for inspection, and mothers are given advice as to the care and feeding of their children. The city also supplies *gratis* to the poor a pure modified milk which is furnished ready for use in four strengths. A written prescription from a physician is required.

7. Klapp describes a new method of physical treatment which he calls air massage. It consists of a strong current of air which is directed against the desired part of the body by means of a nozzle. It has much the same effect as manual massage, but differs from it in that there is no friction. If a current of cold air be followed by one of hot air, active hyperemia is also produced. Good results are claimed.

Miscellany.

THE USE AND ABUSE OF SODIUM BICARBONATE.

In the whole range of drugs in common use there is, perhaps, none the pharmacological value of which is considered less open to question than sodium bicarbonate. It has enjoyed a wide vogue for many generations in cases of gastric pain and hyperacidity of the stomach. It is important, therefore, to notice in the *Bulletin des Sciences Pharmacologiques*, 1906, No. 10, a monograph by Dr. Léon Meunier in which the value of this classic remedy in allaying gastric pain is discredited. Dr. Meunier states that the action of the drug is generally explained in the following way: Gastric pain is due to an excess of hydrochloric acid, which causes no inconvenience during digestion owing to its absorption by the food. But when the stomach is empty the acid begins to exercise an irritating action upon the sensitive nerves of the mucous membrane. The acid is neutralized and as a result the pain is removed by the administration of bicarbonate of sodium at an interval of two, three, or four hours after a meal. Having doubts as to the validity of this theory Dr. Meunier set himself to investigate both clinically and chemically the part played by the drug. He found that in nearly every one of sixteen cases the most severe pain was experienced when the hydrochloric acid in the stomach was at a minimum. As bicarbonate of sodium was uniformly successful in relieving the pain Dr. Meunier was led to attribute its beneficial action not to a mere neutralizing effect, but to the production of carbon dioxide which exerts a calmative effect on gastric pain. The acceptance of this hypothesis suggests the unsuitability of administering sodium bicarbonate alone as a source of carbon dioxide, since its therapeutic action is proportional to the quality of hydrochloric acid present in the stomach and is liable, therefore, to great variations. Moreover, the saturation of the hydrochloric acid by the sodium salt retards the progress of gastric digestion, as pepsin acts only in an acid solution and it further retards intestinal digestion, as the acidity of the gastric juice has been shown by Pawlow to be the specific excitant of the pancreatic gland. This drug may thus reduce a patient to a state of alkaline cachexia which led Trousseau to utter the dictum: "The abuse of alkaline drugs has done more harm than the abuse of mercury." Dr. Meunier suggests that it is more rational to produce carbon dioxide in the stomach by means of tartaric acid and a mixture of carbonates, so chosen as to evolve the gas slowly and continuously without modifying the acidity of the gastric juice. The tartaric acid is prescribed in 1 gm. powders and the alkaline powders contain sodium bicarbonate 0.4 gm., calcium carbonate 0.3 gm. and hydrated magnesium carbonate 0.2 gm. The patient is directed to add an acid and an alkaline powder separately each to half a glassful of water and when the pain commences, to take alternately tablespoonful doses of the acid and alkaline draughts. Dr. Meunier has found that gastric pain is most readily relieved by this treatment, whereas the administration of the alkaline draught alone is much less efficacious. From clinical experience he concludes that the carbon dioxide acts as a sedative by accelerating the evacuation of food from the stomach. — *London Lancet.*

STRAUSS'S "SALOME" FROM A MEDICAL STANDPOINT.

A PHYSICIAN, who is presumably a professor or teacher at either the Polyclinic or Post-graduate Medical School, but does not give his name, has published in the New York *Times* a scathing condemnation of Strauss's "Salome," after being present at its first performance. It is, in part, as follows: "To-night there was presented at the Metropolitan Opera House an opera, 'Salome,' which, in my judgment, is the most serious reflection upon the taste and morals of this community, or of the persons constituting the part of this community which supports the opera, that has ever been made. I am a man of middle life, who has devoted upward of twenty years to the practice of a profession which necessitates, in the treatment of nervous and mental diseases, a daily intimacy with degenerates (using that word in its biological sense to designate those who do not conform to the moral, mental and physical standard to which the position we have reached in evolutionary progress entitles them), so that I may be presumed to have some familiarity with the subject; more particularly as I essay to teach its recognition and significance. Therefore when I say, after deliberation and a familiarity with the emotional productions of Oscar Wilde and Richard Strauss, that 'Salome' is a detailed and explicit exposition of the most horrible, disgusting, revolting and unmentionable features of degeneracy (using the word now in its customary social, sexual significance) that I have ever heard, read of, or imagined, it may be assumed that I have some qualifications that entitle me to sit in judgment upon it. It portrays in the most graphic and explicit way, by appeal through those seductive avenues, the senses of hearing and sight, the consecration of perversion, lust and murder. It depicts a subject that I hesitate to define and outline or to

discuss the significance of, even to my classes, which are made up of mature men and women, all of whom have had years of experience in the practice of a profession which has made them sympathetic with those who are burdened with abnormality, moral or physical." On account of its objectionableness, the owners of the opera house have requested the withdrawal of the work.

Correspondence.

LETTER FROM PARIS.

[From our Special Correspondent.]

THE AUTOMOBILE AS A THERAPEUTIC AGENT.

PARIS, Jan. 11, 1907.

Mr. Editor: Time was when the American chryso-aristocrat came to Paris to lead the cheerful life. Faultlessly overdressed, his hard features clean-shaven and a huge cigar stuck well into one angle of his mouth, he descended on this resourceful metropolis. Voisin's and the Ritz gave him every opportunity for laying a solid foundation for future troubles of one description; while Maxim's and the Moulin Rouge furnished the pabulum adapted to his mental capacity, and at the same time supplied occasions for the acquirement of troubles of another description.

But frequent repetitions of dinners of pressed duck cooked over a brushwood fire, followed by choreographic evolutions of dames of the *Nini-patte-en-l'air* variety among the empty champagne bottles on the table, finished by wearing out the novelty of these attractions, so that our neo-plutocrat had begun to be bored. It was at this psychological juncture that salvation appeared in his visual field in the form of a comet of the first dimensions — the automobile!

Never were two objects better suited to each other than this type of man and the high-speed motor car. Talk about *Wahlverwandschaften*, — these two loved each other at sight. Here was something new and big, that could go like Sheol, that cost so much money that most people were naturally barred, in which he could show off to his heart's content, and about which he could brag eternally; for a man can always find a gallery for a racing motor; few things give the public an idea of such suppressed energy and endless force as a big car standing quivering and exploding in front of a hotel, impatient to be off. Now to be lord and master of such a machine, to stroll with due deliberation up to it, surrounded by the gaping crowd, get aboard, and with negligent movement of the toe start this mass of potential destruction quietly going and in a few moments be rushing along the highway with the velocity of an express train, was an experience that warmed the very cockles of his 4 horse-power heart.

Hence comes that the classic resorts that once sheltered this man's playful gambols now know him no longer. Wrapped in coat of skins, with face-shield and a heavy cap, he spends his time on the fine French *chaussées*. Doing what? Seeing how fast he can get from one place to another.

He doesn't care much where he is, so long as he has a good, straight, level road before him with lines of poplars at the sides, and he is getting over the ground. The country? What matters that to him; distances and speed are his only interests. Were it not for formalities and money deposits at frontiers he would very likely often not even know what country he was in. It is not the fact that between Paris and the Riviera there are places of interest to see: the Loire, Savoie, Provence, etc., that he takes into account; merely the detail that he did the trip in thirty-five minutes less time than the last Willie that went over the ground on a racer.

In the evening at the inn his conversation is of shop: kilometers, horse-power, gear, tires, hill-climbing powers and number of dogs killed. About this last item he is very particular, and never fails to mention it.

With him generally goes a *chauffeur*, a clever French or German, always of course "the best mechanic in the works the car came from, and only permitted by the management to enter his service as a mark of signal favor" (which means that the agents have taken the measure of their client and rely on the chauffeur to get his patron to buy each new model in succession as it is put on the market). This mechanic, to whom he pays fabulous prices, is far too good to do any work, swindles his *Monsieur* in royal fashion over all the bills, and looks on him with the most abysmal contempt for his complacent gullibility.

But you will be wondering to what all this may tend. Well, it tends to a good deal more than may on the surface be apparent. The type we have been describing is a common and, particularly to his compatriots, a highly offensive one. But other people motor, too, and in a more sensible fashion. The changes that the explosion motor has wrought in the habits and lives of a certain portion of the population are most remarkable and well worth the close attention of medical men, and of American physicians in particular. The motor car is more than a means of locomotion, more than a species of reformatory for the bum-element above mentioned; its hygienic aspect is considerable and far-reaching, and it is besides a therapeutic means of the very first order.

A French physician recently published an article on the medical aspects of motoring, in which, after going over a good many of the ills to which the flesh is heir, he examined *seriatim* the question as to whether patients with these various disorders should be allowed to motor. But it would seem preferable to leave such details to the physician, to decide in each case on its particular merits. Whether a patient with tuberculosis, heart-disease, or diabetes is to motor is a question for that particular person's medical adviser, and not for the laying down of rules in advance. What interests us are the general aspects of the subject.

Motoring, to be of use medically, presupposes a good car and good roads; without these it can quite safely be ruled out beforehand. A retired business man from the West, to whom the special merits of motoring for unoccupied men like himself were being unfolded, replied that he had tried it, but had given it up and sold his machine. "Why?" "Because I saw that what little chance I have for salvation would soon be irretrievably lost if I kept at it," from which it was inferred that American cars and western roads may not be above improvement.

Good roads and a good machine, then, being granted, the effects to be derived from motoring depend on a certain number of factors, of which the following appear to be the most salient: Whether you drive yourself or are driven; whether you sit in the open in front, or protected behind, or even inside; the rate of speed at which you habitually go; the length of your trips; the climate of the region where you motor, and the season of the year. No great amount of reflection is required to realize that in these elements we possess a scale of very ample dimensions, as regards the results which a discerning physician can obtain by skilfully varying his combinations of them.

It stands to reason that one class of people should never drive under any circumstances whatever: those with whom there is any possible question of epilepsy. Furthermore, persons with any kind of serious organic disorder, and particularly cardio-vascular cases, will certainly be well-advised in not attempting to drive themselves. For they must bear in mind that in motoring there is always hanging over them the possibility of a sudden and violent emotion: the danger of collision, of an accident to the machine with overturning, and of running over something or even somebody. Such an emotion might easily prove fatal. But there seems less objection to allowing a certain proportion of such cases to be driven by other people, and in particular by careful chauffeurs.

These classes, then, being set aside, which are those for whom motoring may seem particularly suitable?

A large division of the well-to-do occurs to the mind at once, — those who need an occupation; those who are wearied in the pursuit of means of killing time; those whose ordinary life consists in high living and low thinking; those who have too little to do and too much money to do it on. We are all familiar with the sympathetic tatterdemalion known as "Weary Willie." His fatigue,

however, congenital and only muscular, is a mere airy trifle, not to be for an instant compared with the awful *acquired mental* fatigue of the leisure classes. For such persons as these motoring provides that foundation of all things, an occupation; an occupation that will absorb a large part of their time and energy, one that they are not apt to tire of soon (unless they have bad luck right at the start with a defective machine or a rascally chauffeur), and one which they will find very instructive, provided nature has furnished them with the intelligence necessary for that purpose.

Next, for the idle man about town, late riser, leading a confined life, the diner at clubs or with friends who keep chefs, the frequenter of theaters and functions, the candidate heading straight for gout, dyspepsia, spas, obesity and a bald head, — motoring is a godsend. It transforms his life and gets him away from all these pitfalls, out into the open air and to a simple mode of life, to activity and country inns, to early hours and a good, tired sleep. It is true that some people have objected to motoring as necessitating long periods of immobility and giving the owners of cars an aversion to any form of exercise other than that of being whirled along at sixty miles an hour. But if the truth were known, and a motor man were to total up at the end of a season, we should find that the amount of actual footing done by this class is larger than any one imagines, — walking to the nearest village, when not actually helping push the car there! Plenty of motoring is a Providence for these men, whose figures will remain slim thereby and their days long in the land that gave them birth or in some other land.

In tubercular cases, when the process is not in activity and there is no fever or hemorrhage, with patients where the reactive power is well in hand, the pulse does not rise at every pretence and the daily extremes of temperature are normal, motoring ought to constitute a delightful form of open-air treatment, incomparably preferable to the sanatorium. Such a patient is quiet in a car, need have no more motion or emotion than is advisable, has variety and occupation, and, above all, is removed from the depressing herding-together with other tubercular patients in one place with the never-ceasing discussion as to temperature, weight and cough, and the dreary contemplation of the pocket-spittoon. (N. B. It would be an interesting question to know how many tubercular patients have been sent to a premature grave by the sickening thought and sight of this deplorable commodity.)

But the class of people that, before all others, seems particularly indicated as likely to derive benefit from motoring is that of the neurotics, the modern *détraquées*, the large body of our people, particularly women, victims to what has been called, not unhappily, "nervous prosperity." And this is why the subject seems especially worthy of the attention of American physicians.

To these people motoring has nothing but advantages to offer: the attention is diverted to outside objects, and self-concentration becomes less assiduous; in the place of pains and aches they soon begin to talk of speed and kilometers. The continuous douche of cold air to the face, with its stimulus to the nerve terminations (a more energetic action than would be believed *à priori*) does marvels therapeutically and is far more agreeable than the cold water spray or ice sponging of the spine, held in such high favor by Charcot and his followers. All the subordinate conditions in such cases improve dyspepsia, anemia and defective power of sleep, and the transformation effected by a trip of only a few weeks' duration is sometimes absolutely remarkable. In a word, these patients have been supplied with a means of being treated that is at the same time efficacious and interesting.

I have now seen a sufficient number of these neurotic cases treated in this manner to remove all doubts in my mind on the subject; but one of them in particular has made a lasting impression on me. It is that of a lady of a certain age, forty-five to fifty, with no organic trouble whatever; she was merely a woman frail in both body and spirit. When I first knew her she was a confirmed hypochondriac, spending most of her time in her room treating her various conditions and symptoms and thinking of little outside of herself. But one day an energetic friend got her to go out in her car, though under vigorous protest and in fear of her life. This trip, which went better than she expected, was followed by others; the woman began to take an interest in motoring, and finally ended by getting a car for herself.

That patient is now an absolutely different person. She is out and all over the country. Her condition might almost be termed robust, for her. She hardly ever sends for a physician. Her evenings are spent poring over maps, planning trips and running a little wheel along roads to measure the distance between towns, to see whether with her speed she can be at this place for lunch and at that for dinner; in short, she is a transformed creature. She has now an interest in life, and although I do not tell her so, I do not despair of seeing her run her own car before I die at the rate she is now progressing.

Having thus glanced at motoring from the patient's point of view, I will close by an anecdote of its effects on a physician.

A *confrère* I know here recently attained that degree of prosperity or bluff at which a physician sets up a car of his own; and not long afterwards I met him looking fairly satisfied with himself; as a matter of fact he was walking along a quiet street smiling and rubbing his hands. On my inquiring into the cause of this unseemly hilarity in a public place, he replied, "You would never imagine what I was thinking of, so I'll tell you. For the first time in my life I am doing full justice to my patients, now that I have my own motor car. For formerly when I used to go around in one of those public taximeter motor-cabs, while I was upstairs with my patients, I had constantly before my eyes the registering dial on the cab downstairs on which the needle was careering around at frantic speed piling up the francs; so that I hurried through my visits as best I could and was off down again four-at-a-time. But now that there is no registering dial in question *I take my time and do my work properly!*"

"Spectator."

HE WAS AN ENGLISHMAN.

Boston, Jan. 25, 1907.

Mr. Editor: In the excellent paper entitled "The Medical Knowledge of Shakespeare," from the pen of Dr. Getchell, that has recently appeared in the Journal, there occurs a rather serious error which I beg leave to correct. On page 111 of the Journal, Dr. Getchell says, "In a book of John of Gatisden, an Italian medical authority of the fourteenth century, the decay of the teeth is ascribed to a humor or worm."

Dr. Getchell undoubtedly refers to John of Gaddesden (not Gatisden), the author of the famous *Rosa anglica, seu Practicae medicinae a capite ad pedes.* He is also known by the name of Johannes Anglicus. His book appeared between 1305 and 1317, and was published in 1492, at Pavia, at least I am aware of no earlier printed edition.

He was an Englishman and not an Italian. He received his education at Merton College, Oxford, and was physician to the court at London. Chaucer speaks of him in the highest praise.

Very truly yours,

Charles G. Cumston, M.D.

AMERICAN PHYSIO-THERAPEUTIC ASSOCIATION.

Cincinnati, Ohio, Jan. 7, 1907.

Mr. Editor: Will you kindly announce that physicians who are interested in the study and legitimate practice of the physical (drugless) therapeutic methods, notably electro-therapy, photo-therapy, mechano-therapy, hydro-therapy, suggestion and dietetics, are invited to join the American Physio-therapeutic Association. Address the secretary, No. 8 W. Ninth Street, Cincinnati, Ohio.

The officers for the ensuing year are: President, Dr. H. H. Roberts, Lexington, Ky.; Secretary, Dr. Otto Juettner, Cincinnati, Ohio; Treasurer, Dr. George H. Grant, Richmond, Ind.

Very truly yours,

Otto Juettner, M.D.,
Secretary.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 19, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,586	364	Quincy	9	3
Chicago	638	189	Waltham	10	3
Philadelphia	—	—	Gloucester	4	1
St. Louis	—	—	Pittsfield	7	—
Baltimore	211	51	Brookline	8	1
Cleveland	—	—	North Adams	1	0
Buffalo	—	—	Chicopee	5	0
Pittsburg	—	—	Northampton	8	1
Cincinnati	—	—	Medford	10	1
Milwaukee	—	—	Beverly	5	1
Washington	—	—	Hyde Park	2	1
Providence	84	27	Newburyport	—	—
Boston	244	48	Leominster	2	1
Worcester	54	10	Melrose	—	—
Fall River	28	14	Woburn	5	1
Cambridge	24	5	Marlborough	2	0
Lowell	38	11	Westfield	5	1
Lynn	24	8	Peabody	—	—
New Bedford	29	8	Revere	5	—
Springfield	30	2	Clinton	2	0
Lawrence	28	6	Attleboro	5	1
Somerville	26	2	Adams	2	—
Holyoke	28	13	Gardner	—	—
Brockton	9	1	Milford	2	1
Malden	11	2	Weymouth	2	0
Salem	18	4	Framingham	3	—
Chelsea	16	1	Watertown	1	0
Haverhill	17	—	Plymouth	—	—
Newton	12	3	Southbridge	1	1
Fitchburg	7	1	Wakefield	—	—
Taunton	21	2	Webster	—	—
Everett	8	4			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JAN. 26, 1907.

G. PICKRELL, surgeon. Detached from Bureau of Medicine and Surgery, Navy Dept., and ordered to Naval Academy.

F. H. STIBBENS, assistant surgeon. Appointed assistant surgeon with rank of Lieutenant (junior grade) from Jan. 4, 1907.

T. W. SCOTT, O. C. RUGE, appointed pharmacists from Jan. 15, 1907.

E. J. GROW, surgeon. Ordered to Marine Recruiting Station, New York, N. Y., and additional duty in attendance upon officers and men of the navy and marine corps of New York City not otherwise provided with medical aid.

H. E. ODELL, passed assistant surgeon. Ordered to the Naval Hospital, Newport, R. I.

H. F. STRINE, passed assistant surgeon. Detached from New York Hospital and ordered to Naval Hospital, Naval Academy.

J. E. GILL, assistant surgeon. Detached from the "Dubuque," and ordered to the Naval Recruiting Station, Kansas City, Mo.

J. T. DUHIGG, assistant surgeon. Ordered to the Naval Hospital, New York.

R. H. MICHELS, assistant surgeon. Orders of Jan. 4, modified; detached from the Naval Recruiting Station, Kansas City, Mo., and ordered to the "Dubuque."

E. THOMPSON, surgeon. Detached from the Naval Station, Charleston, S. C., and ordered to the Naval Station, Guantanamo, Cuba.

H. C. CURL, surgeon. Detached from duty with Department of Government and Sanitation, Canal Zone, and ordered to report to Surgeon General, U. S. N., for special duty.

S. G. EVANS, surgeon. Ordered to the Naval Station, Charleston, S. C.

I. S. K. REEVES, passed assistant surgeon. Detached from the "Scorpion," and ordered to the Naval Medical School Hospital, Washington, D. C., for treatment.

B. L. WRIGHT, surgeon. When discharged from treatment at the Naval Hospital, New Fort Lyon, Colo., ordered to duty in that hospital.

SOCIETY NOTICES.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.—A meeting of the Clinical Section of the Suffolk District Medical Society in Association with the Boston Medical Library will be held Feb. 6, at 8 o'clock, at the Medical Library, 8, The Fenway. Captain Bailey K. Ashford, M.D., Assistant Surgeon United States Army, will read a paper on "Some Observations on the Campaign against Endemic Uncinariasis in Porto Rico."

R. C. CABOT, *Chairman.*
EDWIN A. LOCKE, M.D., *Secretary.*

LECTURES ON RELATION OF THE MEDICAL PROFESSION TO THE LAW AND THE COURTS.—The first lecture on this subject by Mr. Ezra R. Thayer, at the Harvard Medical School, will be given Feb. 11 instead of Feb. 4 as previously announced.

RECENT DEATHS.

CHRISTOPHER PHILIP LYONS, M.D., M.M.S.S., died in Boston, Jan. 22, 1907, aged thirty-six years.

DR. HENRY A. LEBARBIER of Larchmont, Westchester County, N. Y., died on Jan. 21, from facial erysipelas. He was born in New York City, and was fifty years of age. He was graduated from Dartmouth Medical College in 1891, and at the time of his death was Fleet Surgeon of the Larchmont Yacht Club.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the American Ophthalmological Society. Forty-second Annual Meeting, New York City, 1906. Vol. XI, Part 1.

Plaster of Paris and How to Use It. By Martin W. Ware, M.D. Illustrated. New York: Surgery Publishing Co. 1906.

The Harvey Lectures delivered under the Auspices of the Harvey Society of New York, 1905-6. By Prof. Hans Meyer and twelve others. Philadelphia and London: J. B. Lippincott Co. 1906.

International Clinics. Edited by A. O. J. Kelly, A.M., M.D. Vol. IV, sixteenth series, 1906. Philadelphia and London: J. B. Lippincott Co.

Organic and Functional Nervous Diseases. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D. Second edition, thoroughly revised. Illustrated. New York and Philadelphia: Lea Bros. & Co. 1907.

The Practical Medicine Series. Under the general editorial charge of Gustavus P. Head, M.D. Vol. X. Series, 1906. Chicago: The Year Book Publishers.

Woman in Girlhood, Wifehood, Motherhood, Her Responsibilities and Her Duties at all Periods of Life. By Myer Solis-Cohen, A.B., M.D. Illustrated. Philadelphia, Chicago, Toronto: The John C. Winston Co. 1906.

Transactions of the American Surgical Association. Vol. XXIV. Philadelphia. 1906.

The Hygiene of Pregnancy. By Walter B. Jennings, Ph.B., M.D. New York: Medical Review of Reviews (Inc.)

The Growing Years. By William Seaman Bainbridge, A.M., M.D. Reprint.

A Brief Résumé of the World's Recent Cancer Research. By William Seaman Bainbridge, M.D. Reprint.

A Clinical Lecture on Malignant and Non-Malignant Growths. By William Seaman Bainbridge, A.M., M.D. Reprint.

Malignant and Non-Malignant Growths. By William Seaman Bainbridge, A.M., M.D. Reprint.

The Practitioner's Library. The Practice of Obstetrics. In Original Contributions. By American Authors, edited by Reuben Peterson, A.B., M.D. Illustrated. Philadelphia and New York: Lea Bros. & Co. 1907.

A Treatise on Orthopedic Surgery. By Royal Whitman, M.D. Third edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Bros. & Co. 1907.

Official Register of Harvard University. The Harvard University Catalogue, 1906-7. Cambridge, Mass. 1907.

Original Articles.

TUMOR OF THE SPINAL CORD LEADING TO DESTRUCTION OF THE LUMBAR REGION, HYDROCEPHALUS, DOUBLE OPTIC NEURITIS, AND PAINLESS LABOR. *

BY E. W. TAYLOR, M.D., BOSTON.

THE following case is reported in detail because of its exceptional character and extreme interest from the diagnostic standpoint and also because it revealed a unique pathological condition as a cause for the imperfectly understood symptoms observed during life. It is rare that so great a diversity of manifestations may be explained by a single lesion.

The patient, a woman twenty-four years old, married, noticed the first symptom of the disease, from which she later died, Sept. 25, 1905. She was at the time pregnant, but had hitherto not suffered more than the usual discomfort. On Sept. 25, during the night, while traveling in a sleeping car, she was suddenly seized with pain radiating down both legs. The next day the pain and discomfort continued and on the whole increased in severity. During the following month, October, she had constant and excruciating pain. During this time she was unable to lie in bed and slept propped with pillows, in a semi-erect position. Treatment by violet rays did not result in benefit. In spite of her discomfort she slept from four to five hours during the night, although often waked by pain. Her mind was perfectly clear. The first week in November there was apparent improvement, although she was never wholly free from pain. In spite of a specially selected carriage driving caused pain. At this time the condition was diagnosticated as neuritis. On Nov. 24, she was able to walk from a carriage to the train in New York and had a relatively comfortable trip to Boston. She was seen in Boston by Dr. J. G. Mumford. She was then suffering from extremely severe pain in the legs, coming on in attacks which lasted several hours. There was also complaint of pain in the back. In consideration of the advanced stage of pregnancy and the pain common to women in this condition, it seemed reasonable to suppose that many of her symptoms might be referred to relaxation of the sacro-iliac ligaments. Dr. J. E. Goldthwait, who was called by Dr. Mumford in consultation, confirmed this opinion, and on Dec. 5, etherized the patient and applied a plaster jacket, after having reduced a subluxation of the joint. This was followed by a considerable temporary relief from pain, and the patient was able to lie upon her back, which she had not done for several weeks. This jacket was not well borne, however, and for a time immobilization was obtained by strapping.

On Dec. 7, there was complaint of pain and stiffness of the legs, pain in the region of the bladder, and pressure in the rectum. The patient was extremely restless and much constipated, but obtained a fair amount of sleep. During the days immediately following there was much pain in the legs and back and a constant desire to sit up on account of the greater comfort while in that position. At times the pain in the back and legs would recur immediately on lying down. The urine was passed freely, but was under control. The restlessness evidently induced by pain was constant and distressing, necessitating very frequent changes of position, both in bed and out. At times the pain seemed to become unbearable, but frequently was alleviated by drugs other than morphine. Toward the middle of December, there was complaint of soreness in hips, legs and knees. She found relief in walking; micturition was frequent, but in spite of this fact she complained that the bladder "felt bursting." On Dec. 22, there was for the first time some difficulty in passing urine with continuance of the complaint of pain in the bladder, at times described as intense. Catheterization relieved this symptom for the time being and large amounts of urine were passed when the catheter was not used, but only after efforts lasting for an hour or more. At about this time she became irrational at night. Excessive pain in the back and legs continued, and the legs and feet began to grow weak. On Dec. 24, when out of bed, she was practically helpless, and could not support herself properly when standing. She was, however, still able to pass urine although with much difficulty. On Dec. 25, control of the feet and legs was practically lost, and there was complaint of numbness of the legs.

On Dec. 26, Dr. J. G. Mumford called me in consultation. In addition to the facts already noted, it was found that there had been definite hallucinations both of sight and hearing, and occasional disorientation both as to time and place. She had at no time been depressed, but on the contrary was rather elated. Many of her remarks concerned events which had not occurred, and there was considerable mental confusion combined with an apparently clear recognition on her part of her mental failings, together with considerable sensitiveness when they were pointed out to her. There had been no elevation of temperature at any time, so far as known, but the temperature had not been taken with absolute regularity. Physical examination on Dec. 26 showed for the time being a somewhat flighty mental state, but absolutely no further disturbance mentally. All questions were answered with absolute clearness. Examination of the legs objectively showed that pain and contact were felt and correctly interpreted, although blunted over certain areas below the knee. Temperature was correctly recognized over both legs wherever tested. The muscular sensibility of the toes was unimpaired, but the soles were not ticklish. The motion of the toes and ankles was preserved and carried out with a fair degree of strength. Both flexion and extension of the knees were, however, very much affected, and, in fact, very little movement was possible. The knee jerks were absent in spite of reinforcement. There was no plantar reflex whatever, no clonus, no Achilles reflex. The paralysis was flaccid. Further physical examination was entirely negative as regards signs of organic disease. There was no definite complaint of the head or upper part of the body, and beyond the mental disturbance already alluded to, there was nothing whatever in the condition of the pupils[1] or otherwise to call attention to disturbance elsewhere than in the lower portion of the spinal cord. The headache, of which complaint was made, was somewhat vague in character, and at this time wholly subordinate to the more intense pain of the lower back and legs. The following day the condition was essentially unchanged. There was, however, much mental confusion regarding time, persons and events. For example, she did not realize that her husband had gone to New York, although well aware of the fact. During the following days there was some improvement in regard to the mental state. She was much clearer, and seldom made mistakes of identity. There was

* Reported at the meeting of the American Neurological Association, Jan. 4, 1906.

[1] The pupils later were widely dilated and immobile, as the subsequent optic neuritis increased to blindness. The fundus when first examined was normal.

an increase of disturbance in the legs. Sensibility was more impaired and the disturbance extended up, involving the thighs. The sense of position of the legs was lost. The bowels were excessively constipated and there was retention of urine with occasional dribbling. On Jan. 11, the urinary incontinence was complete, and the patient had no knowledge whatever of the passage of urine. There was absolute loss of power in the legs and thighs. Sensation was completely lost to all forms of stimulation in the legs. At the upper part of the thigh there was a slight preservation of the pain sense. Slightly higher in the gluteal region and to a point about midway between the pubes and umbilicus there was marked hyperesthesia.

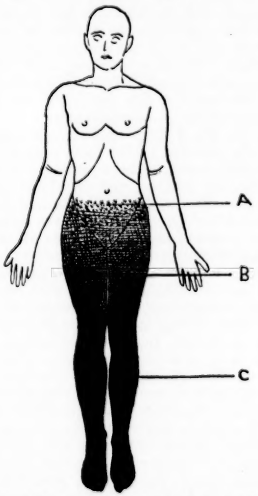


FIG. 1. Areas of anesthesia and hyperesthesia, Jan. 11, 1906. A, Hyperesthetic zone. B, Anesthesia almost complete. C, Complete anesthesia. Disorders of sensation occurring later in body and upper extremities not charted. (See text.)

During the development of these signs of organic disease the patient became more excitable, at times emotional, and occasionally asserted that she had been deceived. On Dec. 29, headache became more conspicuous, together with backache. There was extreme nervousness, restlessness, discomfort and pain. Examination of the urine at this time by Dr. H. F. Hewes was as follows:

Twenty-four hour amount, 2900 cc.; sp. gr. 1004, color pale, reaction acid. Uph.— ; Ind.— ; B.C., 0; Sulph.— ; acetone, 0; urea 23.999 gm.; uric acid, 0.17; chlor. 4.4; phos. a. 0.14; sugar, 0; albumin, slightest possible trace; uric acid to urea 1 to 141. Sediment, occasional hyaline and granular cast with occasional squamous cells and leucocytes. Lead and arsenic both absent.

On Dec. 30, she thought she was in Montreal, but much of the time was entirely rational. The pulse was slightly irregular. On this day there was a consultation of Drs. W. L. Richardson, J. G. Mumford, J. C. Hubbard and E. W. Taylor, at which no definite conclusions were reached. On this day also certain symptoms developed which were regarded as in a measure at least hysterical. On being offered her dinner she asserted that she had already had several and would not eat another. She ate a small amount, however, on persuasion, but became angry, threw down her fork, screamed loudly and attempted to get out of bed in spite of paralysis of the lower extremities. Up to Jan. 12, symptoms similar to those already described persisted and on the whole increased in severity. Stiffness of the neck was added to the other signs, associated with the greatest sensitiveness on moving the head in any direction. Absolute paralysis of motion and sensation of the legs and of the sphincters persisted. The headache became severe and all the pain, excepting that in the legs, which naturally no longer existed, increased. During this entire period the pregnancy had progressed normally and with no discomfort beyond that naturally incident to the condition.

On Jan. 11, an examination of the fundus oculi by Dr. F. I. Proctor showed a slight and somewhat doubtful beginning optic neuritis with slight lack of balance of the ocular muscles. Several examinations later by Dr. Proctor showed a rapidly increasing swelling of the papillæ and an excessive amount of inflammatory exudate. Diminution in vision kept pace with the neuritis and sight was finally completely lost.

On Jan. 13, an examination by Dr. J. C. Hubbard, who was in charge of the case, showed definite uterine contractions; although the patient was conscious of these contractions she made no complaint of pain beyond a certain amount of abdominal discomfort. The membranes had ruptured during the night. About three hours later the head was on the perineum, the labor having been accomplished absolutely without pain. The abdominal muscles apparently took no part in the process, although the uterine contractions up to this time had been adequate, though lacking in force. There was, however, no evidence that further progress would be made. Low forceps were applied and a healthy girl baby delivered without difficulty. The perineum was torn and was at once sewed up without the slightest evidence of pain. There was no post-partum hemorrhage and the uterus contracted in perfectly normal fashion and without further incident. The entire labor had been accomplished without pain, and, in fact, the birth of the baby was merely an incident in the day, insignificant in comparison with the pain and distress caused by the underlying disease. No anesthetic was at any time used and the patient was practically unconscious of the process of delivery, although there was some complaint when the placenta was expressed by a hand on the abdomen. Dr. Hubbard calls attention to the following points of interest in the labor: (1) Its painless character. (2) The absence of any instinctive use of the auxiliary muscles during the second stage. (3) The satisfactorily firm contractions of the uterus after the labor. The possibility of a severe post-partum hemorrhage had been considered, due to an interference with the proper nerve supply to the uterus.

The patient remained under Dr. Hubbard's care during an uneventful convalescence from the labor. She did not nurse the baby, and there were no complications whatever of an obstetrical sort. In other respects the condition remained essentially the same, except that toward the end of January there was some nausea associated with headache and at times rather free vomiting. The pain was localized in the middle of the back and occasionally extended up into the neck. There was complaint of a feeling of general numbness and pain, particularly in the left eye, with ringing sounds in the right ear. An examination of the ear by Dr. E. A. Crockett found no local cause for this latter symptom. Jan. 26, there was a further consultation by Drs. W. L. Richardson, J. C. Hubbard and E. W. Taylor. The patient had again become very disturbed, continually twitching and working her

hands in a more or less purposive way. Ringing in the ears continued and there was complaint of prickling sensations in the arms. The mental state was, however, such that no adequate or systematic examination of the objective sensory disorders in the upper part of the body and arms was attempted. The symptoms in general were of an irritative character. There was at no time paralysis of the upper extremities. During the latter part of January an attempt to express herself could not be understood. She was emotional at intervals, refused her medicine, and was apparently much distressed in mind, muttering constantly and incoherently. She also refused food, made few requests and lay much of the time, when not moving her hands, in an apathetic state with her eyes closed. At this time she was disoriented, and also on one occasion refused tea, saying it was rotten and filled with drugs. In spite of these occasional lapses, however, her appetite remained remarkably good, and, in fact, continued so up to the very end of her illness. She was interested in the baby for some weeks after her birth, and frequently asked to have her in the room. This interest she later entirely lost.

Early in February, Dr. J. C. Hubbard retired from the case with the patient recovered from the effects of labor. An examination on Feb. 6, showed no Faradic reaction whatever in any of the muscles of the legs to very strong currents. Complete paralysis of sensation and motion remained. By means of regular catheterization at short intervals the urinary conditions were somewhat improved, although there was absolutely no control. The condition of the bowels also improved very considerably, and, although requiring strong cathartics and occasion enemas, the previous impaction was in great measure overcome. The attempt to use a wheel chair did not meet with success, although frequent efforts were made. On the whole the patient was now much more comfortable lying flat than in an upright or semi-upright position. A bed rest was used temporarily with satisfaction, but the patient never sat up for any length of time without complaint of much discomfort and an expressed desire to return to bed.

Examination of the eye grounds by Dr. Proctor early in February showed much swelling of the left optic disc and considerable inflammation of the right. The sight of the left eye was practically abolished and of the right much blurred. She could count fingers but was wholly unable to read typewriting in any position or with any light. The visual fields roughly tested were apparently normal so far as the deficient sight permitted a determination. An examination of the urine by Dr. Wilder Tileston from a catheter specimen showed pale color, acid reaction, specific gravity 1010, cloudy, slightest possible trace of albumin, no sugar, and normal chlorides. The sediment showed no casts and nothing of significance beyond a moderate amount of pus. An examination later by Dr. Tileston for arsenic showed a wholly insignificant trace.

During the first part of February, except for occasional lapses, the patient was mentally clear nearly all the time, but complained constantly of pain in various parts of the body and general discomfort. On the whole, however, she was cheerful, and extremely courageous, though at times naturally discouraged. Dr. Morton Prince saw the patient on several occasions at about this time. He was unable to explain the curious and changing mental condition which he was inclined to think might be analogous to certain hysterical states, or possibly to an intoxication of some unknown sort. He also suggested the possibility of tumor, but owing to the unexplained combination of definite signs of transverse lesion of the cord in its lower portion, together with marked cerebral symptoms, notably optic neuritis, this idea was not seriously entertained.

During a night in the latter part of February the patient became suddenly apprehensive and assured the nurse that an attack of some sort was imminent. Soon thereafter she became totally incoherent in speech, possibly beginning or ending a sentence with a definite word, but using absolutely unintelligible syllables between. This incoherent muttering continued almost constantly for some hours. This was followed by vivid hallucinations of sight and occasionally of hearing with constant movement of the arms and fingers as of tying and untying string. During the remainder of her life she at no time completely recovered from the condition which was ushered in by the foregoing sudden mental change. She became increasingly apathetic and indifferent to her pain, but at no time was she totally unconscious, or presumably ignorant of her surroundings. It was evident that her weakness was increasing and that nothing but a fatal outlook was to be looked for, although previously hope had been entertained that the underlying process might be of the nature of a myelitis and self-limited.

Early in March, Dr. F. C. Shattuck was called in consultation and again later. He found absolutely no abnormality of the chest or abdominal organs, and, like those who had previously seen her, was at a loss as to a definite diagnosis. A blood examination by Dr. John B. Hawes at this time was as follows: Hgb. 80%; reds 6,232,000; whites 10,500. Stained specimen showed no achromia or other abnormality. No blasts or plasmodia seen. Diff. count of 500 whites showed: Polynuclear, 70.8%; lymphocytes, 26.6%; eosinophiles, 2.6%.

At about this time a very slight paresis of the left facial nerve was observed, together with slight disturbance in the movements of the left eye, both externally and internally. These disturbances, however, did not increase, but on the other hand the facial paralysis distinctly improved later. She was at this time probably totally blind, but made small complaint either of this or of other symptoms. Owing no doubt to the increase of the cerebral symptoms and the blunting of sensibility dependent thereon, her suffering was very decidedly less than during the previous months, although it was evident from time to time that pain of the back, neck and head persisted. Weakness increased rapidly, and although food was fairly well taken up to within a week of her death, her strength failed to such an extent that all movement was impossible and even swallowing became difficult and a painful effort. The urine became scanty in amount, of high specific gravity; the pulse for some weeks was between 110 and 140, and the respiration increased to 36 to 40 toward the end. She died quietly March 25, without suffering, but apparently conscious up to a short time before.

AUTOPSY.

A complete examination was made by Dr. S. B. Wolbach, March 25, three and a half hours post-mortem, the notes of which follow:

Body well developed, but poorly nourished. No rigor. Slight lividity of the dependent parts. No edema. Pupils equal, 0.5 cm. There is a scar in the left axilla, several linear scars over the right tendo-Achillis. The feet are extended.

Peritoneal cavity. — Abdominal fat 1.5 cm. thick, deep yellow in color, loose in texture. No retroperitoneal fat. The peritoneal surfaces are everywhere normal. No free liquid; no adhesions. There is a small calcified node, 0.5 cm. in diameter, in the superior ileo-cecal angle. Several mesenteric nodes contain minute, calcified nodules. The diaphragm reaches to

the fourth space left, fourth rib right. The appendix is normal, about 8 cm. long, directed upwards and inwards. The proximal half is retroperitoneal, the distal half is free with a mesentery.

Pleural cavities. — Normal.

Pericardial cavity. — Normal.

Heart. — Normal in size, weight 250 gm. There is very little epicardial fat. The myocardium is firm, dark red, walls are rather thick. Valves and endocardium are normal. Coronary arteries are normal.

Lungs. — Both lungs are pale red, soft, dry, except along posterior borders, where they are darker in color, wet and injected.

Spleen. — Weight, 110 gm. Normal in size. Capsule smooth. Color, bluish red. Consistency, firm. On section normal structures are visible.

Liver. — Weight, 1300 gms. Dark red in color. Capsule smooth, even. Consistency, normal. On section lobular markings are easily visible by virtue of darker red centers. Gall bladder and ducts normal.

Pancreas. — Normal.

Gastro-Intestinal Tract. — Normal. The transverse and descending colon are filled with nodular masses of dry, dark brown feces.

Kidneys. — Weight, 265 gm. Normal in size. Dark red in color. On section the pyramids are dark red. The cortex is pale, with dark red radial lines. Glomeruli prominent as red dots. The consistency is very firm. Capsule strips easily from a smooth surface. Cortex measures 6-8 mm.

Adrenals. — Normal.

Genitalia. — Normal. Bladder, normal.

Aorta. — The intima has a few bright, yellow linear elevations in the lines of the orifices of the intercostal arteries.

Head. — Scalp normal. Pacchionian granulations are small, but numerous.

Brain. — The convolutions are flattened. Pia is dry, markedly injected. While the brain lies in position, the posterior half bulges slightly, and is firmer on palpation than the anterior half. The vessels at the base are normal. The olfactory grooves are deep, their foramina are large. The dural sinuses at the base are normal. The floor of the middle fossa on the left side near the anterior margin contains several small pits and the dura corresponding presents small, soft, grayish excrescences. The olfactory bulbs are poorly defined and the olfactory tracts terminate in masses of gray matter with irregular surfaces, molded apparently to correspond with the deep, olfactory grooves. The consistency of the brain is slightly plastic. The cortex on section has a bluish tinge. The puncta cruenta are prominent as oozing points. The lateral ventricles are markedly dilated and contain about 80 cc. of clear, colorless liquid. The ependyma is normal. Nothing abnormal found on section of the hemispheres, basal ganglia, pons, medulla and cerebellum.

Cord. — The cord completely fills the spinal canal and the exposed dura presents many irregularities. In the region of the cauda equina the canal is packed with a soft, inter-dural mass, which after removal of the cord, presents as a spindle-shaped mass, matting together the filaments of the cauda equina and extending upwards surrounding the whole lumbar enlargement. The whole dorsum of the cord as far as the middle of the cervical enlargement is covered with an irregular, knobbed, sub-pial growth. In the lumbar region there is a fairly uniform layer, 2-5 mm. thick, surrounding the cord, invading it and filling the spinal canal below. In this region the mass is composed of yellowish, rather firm tissue in places soft and necrotic, with occasional small foci suggesting hemorrhage. In the upper thoracic and cervical cord the dorsal surface alone seems to be involved. In the lower thoracic cord there is a fairly uniform layer of grayish, translucent, rather firm, and elastic tissue with many rounded knob-like projections. Higher up the layer is thinner, in places not demonstrable, but there are mounds of similar tissue 2-5 mm. in diameter, closely placed as far up as the middle of the cervical enlargement. Here there is again a sheath 2-3 mm. thick on the dorsal surface, and above this a few small nodules, extending about to the upper third of the cervical enlargement, higher on the left than on the right side.



FIG. 2. Cross sections of cord from lumbar to upper cervical region, showing extent and position of tumor. 8. Lumbar region, practically complete destruction. In upper sections note dorsal sub-pial position of the growth. The secondary degenerations, mainly of the dorsal tracts, are explained by the partial destruction of the dorsal nerve roots, portions of the dorsal tracts, and to a much less degree of the dorsal gray leading to slight degeneration in Gowers's and direct cerebellar tracts. (Accurate tracings, Edinger drawing apparatus.)

In no place is the pia penetrated. The sub-pial vessels are injected, tortuous, in places pushed up, in places surrounded by the growth. Section of the lower lumbar cord shows an apparent continuity between the growth and the gray matter. The cord is everywhere distorted and soft. In the lumber region the cord is markedly flattened and in places no margin can be made out between the tumor mass and the cord. In the dorsal and cervical regions the cord is sharply demarcated from the surrounding growth. Several dorsal ganglia removed from each of the cervical, dorsal and lumbar regions are apparently normal.

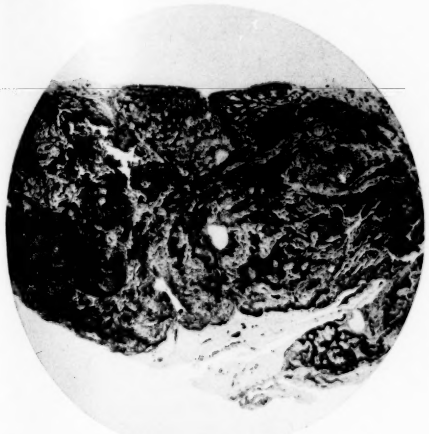


FIG. 3. Lumbar region No. 8 of Fig. 2. x 6.4. Practical complete destruction of the cord by the tumor. (Photograph by W. C. Greene.)

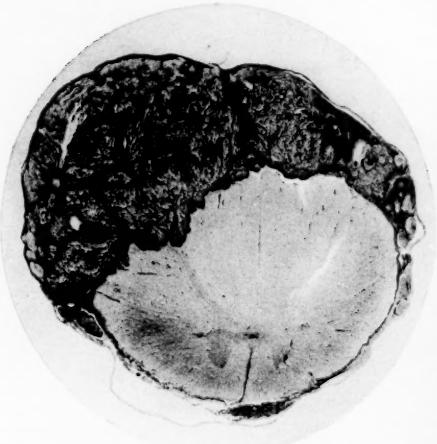


FIG. 5. Mid-thoracic region. No. 5 of Fig. 2. x 6.4. Dorsal position of main tumor; the subpial location is well shown, also the manner of invasion of the cord. (Photograph by W. C. Greene.)

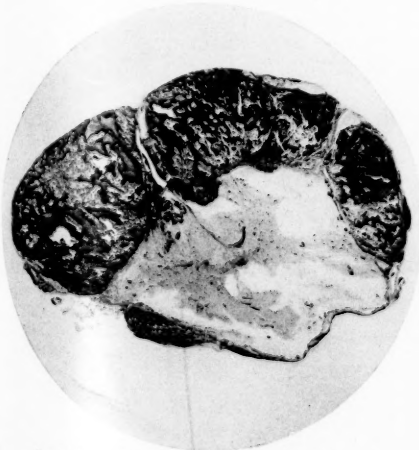


FIG. 4. Lower thoracic region No. 7 of Fig. 2. x 6.4. Dorsal position of tumor; slight invasion of the ventral surface. Disintegration of the substance of the cord. (Photograph by W. C. Greene.)

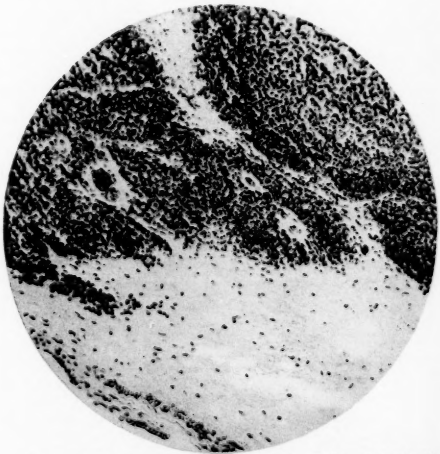


FIG. 6. Edge of tumor. x 98. Sarcoma made up of small round cells fairly uniform in size. No evidence whatever of neuroglia fibrils. (Photograph by W. C. Greene.)

ANATOMICAL DIAGNOSIS.

Sarcoma of the spinal cord. Internal hydrocephalus (acquired). Congestion of liver and kidneys. Retention of feces.

MICROSCOPIC EXAMINATION.[2]

Histologically the new growth consists of relatively small, for the most part round, cells, with a small amount of protoplasm. The cells are in general uniform in size and arranged indefinitely as regards blood vessels and stroma. (Fig. 6.) In places the tumor has evidently followed the course of least resistance along the walls of the blood vessels, but in general the relation to blood vessels is entirely indefinite and the cells are no more numerous in their immediate neighborhood than elsewhere. Most careful study by means of several neuroglia stains, especially phosphotungstic acid hematoxylin, showed no evidence whatever of fibrils. The blood vessels are extremely numerous throughout the tumor and in certain places there is evidence of free hemorrhage. So far as can be determined at the late stage at which it was possible to study the tumor, the new growth began in the membranes external to the cord, presumably in the region of the cauda equina, and even in its developed state lay between the pia and cord, infiltrating and destroying the cord only at certain levels later to be described. In general the invasion of the cord is sharply marked and a fairly sharply defined line separates the pathological from the normal tissue. It is evident that the external surface of the cord afforded a barrier to the growth of the tumor inwards. Except in the lower portion of the cord the tumor lay almost entirely on the dorsal side and between the pia, which is lifted by the tumor from the cord, and the cord itself. The subdural space was in no part affected except possibly at lower levels where the destruction was practically complete of all the nervous structures.

Appearance at various levels. — The sacral and lumbar cord is practically entirely destroyed by the invasion of the tumor. At these levels it is impossible to distinguish the outlines of the cord or the distinction between the gray and white matter. Weigert myelin sheath stains show in these levels a complete disintegration of myelin, and the nerve roots, both dorsal and ventral, are likewise indistinguishable in the tumor mass. (Fig. 3) At the upper levels of the lumbar enlargement and the lower part of the thoracic region, the cord, although very much distorted and distintegrated, is not completely destroyed. (Fig. 4.) The mass of the tumor at this level is localized on the dorsal portion of the cord, involving and destroying the dorsal nerve roots and sparing the ventral nerve roots. The cord itself is also to a certain degree invaded by the new growth. The same condition persists throughout the thoracic region (Fig. 5), the tumor, however, decreasing somewhat in extent, but always sharply localized dorsally and wholly within the pia. The invasion of the cord varies at different levels, but the ventral horns are nowhere involved above the lumbar enlargement. In the cervical region the tumor gradually disappears, extending, however, well into the enlargement and involving, as below, the dorsal nerve roots. The tumor also appears in very slight degree at certain levels on the ventral surface of the cord, but not sufficiently to involve at any level above the lower thoracic region the ventral nerve roots. Secondary degeneration of the dorsal tracts, and also in lesser degree of the direct cerebellar and Gowers's tracts, occurs throughout the thoracic and cervical regions. The fact that the columns of Burdach in the cervical region are not deeply degenerated naturally indicates that the thoracic nerve roots were not completely destroyed in their passage through the tumor.

The oblongata is normal and the brain also shows no abnormality beyond the high degree of hydrocephalus. Most careful examination shows that the tumor is limited to the spinal cord and in all probability is a continuous growth from below upwards, showing no metastasis even in the cord itself. Owing to the hydrocephalus the optic chiasm is very markedly compressed. Microscopic examination, however, shows no evidence of edema or other pathological change in spite of the high degree of choked disk observed during life. Examination of other internal organs shows no significant abnormality except very slight evidence of previous but healed tuberculosis.

SUMMARY. The essential features of the foregoing case are as follows:

A young, pregnant woman was suddenly seized with radiating pains down both legs, in September. The pain increased, and walking became difficult on account of the pain. The urine was at first under control. Later, the pain extended to the bladder and rectal regions, and in the latter part of December, difficulty in micturition supervened, necessitating the occasional use of the catheter. Beginning mental disorder appeared at this time; pain extended into the back; beginning paralysis of the legs, standing alone impossible; urine passed only with extreme difficulty; sensory disorders in the legs developed; loss of power in the legs rapidly supervened, together with disappearance of the reflexes. Increase of mental confusion, disorientation as to time and place; extreme constipation, and complete urinary incontinence. Thereafter, headache, much restlessness and discomfort, stiffness of the neck, and sensitiveness on moving the head; increasing headache, beginning optic neuritis, going on later to blindness. In the middle of January a painless labor, giving birth to a healthy child. Prickling sensation in the arms, but without paralysis. In February, persistence of complete transverse lesion of the cord, with no Fařadic response in the muscles of the legs. Very marked mental disturbance, with final loss of the power of speech, and increasing apathy. Death six months from the onset of the first pain.

POST-MORTEM. Extensive tumor of the spinal cord, destructive in the lumbar region, associated with internal hydrocephalus.

DIAGNOSIS.

The signs and symptoms observed during life are evidently completely explained by the post-mortem findings.

PAIN. A predominant feature of this case from its beginning to its end was pain, the significance of which was not at any time completely appreciated. The original assumption in the early part of the disease was that the pain was due to a peripheral nerve affection which was regarded as a neuritis. A later assumption was that the pain, confined as it was largely to the legs in the sciatic distribution, was due to the loosening of the sacro-iliac joint, in part a consequence of the ad-

[2] I am indebted to Dr. S. B. Wolbach for assistance in making histological preparations and in interpreting the appearances, as well as for the gross pathological examination.

vanced pregnancy. Investigation showed that there was an actual displacement of the bones, and their restoration to a proper position gave rise to an amelioration of the symptoms which, however, did not persist. The pain later redeveloped in a severe form, as before the operation on the joint. This idea, therefore, although no doubt explanatory of a part of the discomfort, did not account for the persistent and distressing pain. The third supposition, which was erroneously entertained by many of the physicians who saw her, was that the pain in great measure was due to the somewhat nervous condition in which the patient was supposed to be, partly as a consequence of her pregnancy, and partly as a temperamental peculiarity in a person who had in her previous life not been the victim of pain. Under this supposition it was supposed that the pain was less severe in character than appeared from the statements made regarding it by the patient. In the light of the outcome this theory was proved to be wholly incorrect, but there was much reason for entertaining it during the illness. It was, for example, repeatedly observed that relatively small doses of the less powerful drugs apparently frequently produced an amelioration of the pain. Excepting on one or two occasions morphine was at no time given. It was also supposed that the pressure of the pregnant uterus possibly might conduce to pain in the legs through actual pressure. The correct interpretation of the pain as due to the tumor was at no time made, although Dr. Prince, in consultation, suggested the possibility of new growth. The extension of the pain upward, the stiffness of the neck, with extreme discomfort on moving the head, and the varied descriptions of abnormal sensations which the patient gave did not throw light during life on the cause of the pain. Had the discomfort remained localized in one part of the body the confusion would not have been so great; its widespread distribution somewhat naturally obscured its cause.

The findings at the autopsy completely explained the pain. The tumor undoubtedly originated in the nerve roots of the cauda equina. The first symptoms were irritative in character, radiating pains down the legs. Later, as the tumor extended and destroyed the lumbar region, the pain in the legs gave place to a complete paralysis, both of sensation and motion, naturally with a cessation of pain in that region. As the disease progressed upward, involving the dorsal nerve roots practically throughout the entire extent of the cord, pain naturally developed at the various levels of the spinal segments, and finally involved the neck and arms to a certain degree. The head pain was due to the hydrocephalus, a consequence of the tumor, and misleading in its significance.

MYELITIS. In addition to the confusion resulting from the interpretation of the pain, the relatively sudden onset within three weeks of a complete transverse lesion of the cord in the lumbar region still further complicated the situation. In spite of the fact that there was no evidence of a rise of temperature during this period, or immediately preceding it, the character of the onset, and the completeness of the resulting lesion led to the supposition that a softening of the cord had taken place, presumably of an inflammatory sort, producing a lesion which might justly be termed a transverse myelitis. The signs of transverse lesion were almost complete. There was almost absolute sensory and motor loss from about the level of the pubes down, with an area of hyperesthesia immediately above this level. It was supposed not unnaturally that a destructive lesion of the cord had occurred, which would remain limited to that area; and the opinion was expressed that this lesion had no direct causative relation with the pregnancy, but was rather to be considered as a coincidence. This subsequent developments proved to be the fact.

The etiology of this condition was, in the minds of those who saw the patient, absolutely in doubt. To use a popular, but not altogether exact, term, it was regarded as probably an intoxication or infection localizing its destructive effects at a certain level of the cord, but also influencing higher areas in the nervous system, as shown particularly by the mental disturbance which was already conspicuous at this time. This idea was further re-enforced as time went on by the appearance of an optic neuritis and increasing mental disturbance for which no adequate cause could be found. In 1899, Bielschowsky [3] reported in the form of a monograph four cases with autopsy, of myelitis associated with optic neuritis. In these cases disseminated lesions of the cord and of the optic nerves were disclosed post-mortem, due it was supposed to a common cause.

The combination of mental symptoms, considerable though not excessive headache and optic neuritis, together with the symptoms of a transverse lesion of the cord somewhat naturally diverted attention from the correct diagnosis. As the case progressed, however, the increasing failure of strength was difficult to interpret, together with the pain which, although no longer appearing in the legs, was a constant source of complaint through the back, neck and, in less degree, in the arms.

Here again, the autopsy provided a complete explanation of the clinical symptoms. The transverse lesion of the cord was due to the somewhat sudden invasion by the tumor of the lumbar region. The optic neuritis was unquestionably due to the hydrocephalus which in its turn resulted from the complete occlusion of the vertebral canal by the tumor throughout practically its entire length. The mental symptoms also no doubt find their explanation in the disturbance occasioned by the hydrocephalus. The clinical interpretation was defective, but it is altogether questionable whether the evidence during life as demonstrated post-mortem would have justified the assumption of a single tumor as the cause of the cerebral as well as the spinal symptoms.

[3] Bielschowsky: Myelitis und Sehnervenentzündung. Berlin, 1892. S. Karger. Pp. 92. Ref. Neurologisches. Ctb. 1901, vol. xx, 457. Clinical course of cases. Schuster and K. Mendel, *idem.*, 1899, pp. 1088-1093.

That the motor power in the arms was at no time affected is explained by the fact that the tumor in its course upward through the spinal canal was confined almost exclusively to the dorsal portion of the cord, never, in fact, invading the ventral portion in the upper thoracic and cervical regions to an extent sufficient to produce definite motor disturbance of the arms.

The clinical course of the case therefore finds complete explanation in the pathological findings. The initial pain, the succeeding apparent myelitis, the ascending disturbances in the body and arms of a sensory sort, and, finally, the altogether puzzling involvement of the brain in the process, together with a degree of optic neuritis which led within a few months to practically complete blindness were due to a single widely extended spinal tumor, destructive of the cord in the lumbar region, external to the cord in the thoracic and cervical regions, and obliterating practically the entire spinal canal.

REMARKS.

Several matters in relation to this altogether extraordinary case demand further comment.

The Pathological Condition. A tumor involving so great an area of the spinal cord and canal is exceedingly unusual.[4] Except in cases of general metastasis, the location of a spinal tumor is, in the great majority of cases, somewhat sharply circumscribed and therefore in a measure amenable to surgical interference. In this case the growth of the tumor was evidently continuous from below upward, although at many points the growth assumed a nodular form, which superficially gave the appearance of discrete tumors. There were no metastases, and the oblongata and brain in general were uninvolved by the tumor. The location between the pia and the cord, except at the lower levels, was noteworthy, and also the relatively slight tendency to actually invade the cord except where the mechanical conditions of rapid growth in the lumbar region apparently necessitated such invasion. The histological character of the tumor was somewhat unexpected, namely, a small-celled sarcoma. Evidence of glia cells was wholly lacking. In the light of the clinical history, the tumor undoubtedly originated in the sacral nerve roots, which could hardly have been the case had it been a gliomatous tumor, except through some malformation of tissues, which the autopsy did not reveal. The points of chief interest regarding the tumor are: its histological character; its extent; its method of growth, and the diversified symptoms it was capable of producing. The etiology of the tumor is wholly obscure.

The Painless Labor. The birth of a baby at term was, so far as the patient was concerned, a trivial incident in the course of her illness. The labor was absolutely painless, due naturally to the complete destruction of the lumbar cord. The only indication of the beginning of the progress of the labor, as expressed by the patient, was that she had some "pain in her stomach," to which, however, she gave little attention. The beginning of labor was only determined by the perfectly definite and apparently normal contractions of the uterus as felt through the abdominal wall. The baby's head reached the perineum without incident, and without conscious labor pains. The uterus then ceased to perform its function, and extraction by forceps was necessitated. This was easily accomplished, and a perineal tear sewn up absolutely without pain to the patient. After labor the uterus contracted normally, and there was no hemorrhage, which naturally had been feared. The convalescence was so overshadowed by the underlying disease that it made little impression either upon the patient or upon the attendants. Naturally the same precautions were taken as in an ordinary labor. The perineal tear healed entirely without complications in spite of the complete anesthesia of the part, and the urinary incontinence. The development of the baby was entirely uneventful.

Occurrence of Optic Neuritis in Tumors of the Spinal Cord. In spite of the fact that optic neuritis has occasionally been described in cases of tumor of the spinal cord, this event is so unusual as to justify a serious doubt regarding diagnosis if it occurs. This is particularly true in tumors involving the lower portion of the cord. In such cases, so far as we are aware, optic neuritis has never occurred, nor would it have occurred presumably in this case had the tumor not also extended into the cervical region, and thereby made possible the condition which led secondarily to the neuritis. In our case the explanation of the neuritis is evident: it was due to hydrocephalus which in turn was occasioned by the practical occlusion of the spinal canal by the tumor. This led to a blocking back of the cerebro-spinal fluid normally finding egress from the brain into the subdural space of the cord. It is difficult to conceive that such a mechanical cause for optic neuritis could arise from a tumor limited to the lumbar region. Had we suspected an extension of the tumor upward, as proved to be the case, a possible explanation of the optic neuritis might have been reached before death. In the absence of such knowledge the supposition of a common inflammatory process producing at the same time a destructive lesion of the spinal cord and an optic neuritis was the more justified hypothesis.

Kernhensteiner[5] has recently reported a case of optic neritis and myelitis, and gives as an explanation a common toxic cause, after the manner of tabes. In 1901, James Taylor and Collier[6] made a careful study of the occurrence of optic neuritis in various lesions of the spinal cord. In this article they report twelve personal cases, but only one with autopsy, cite the cases in literature, and analyze a large number of local lesions observed at the National Hospital between the

[4] Nonne has reported a somewhat similar case also with optic neuritis. Ueber einen Fall von intramedullärem ascendirendem. Sarcom, sowie drei Fälle von Zerstörung des Halsmarks. Arch. für Psychiat., 1900, vol. xxxiii, 393–430.

[5] Kernhensteiner: Ueber Neuromyelitis optica. Münch. med. Wochenschr., 1906, vol. liii, 802. References to literature.

[6] Taylor and Collier: The occurrence of optic neuritis in lesions of the spinal cord, etc. Brain, 1901, vol. xxiv, 532.

years 1892 and 1900. In their own cases they found optic neuritis associated with tumor in two, and possibly three, cases, all localized in the cervical region, judging from the symptoms. There were five and possibly six cases of optic neuritis associated with myelitis, again in all cases involving the cervical and upper dorsal portion of the cord. From this analysis it appears that myelitis is a far commoner cause of optic neuritis than tumor. The relation of neuritis to lesions of the spinal cord, according to these authors, depends, first, upon the position of the lesion, second, upon some peculiarity in the nature of the disturbance of the function of the spinal cord produced by the lesion, which, although in some cases extensive, has always been partial. Beyond this the authors advance no definite theory, but call attention to the fact that even in the cervical lesions optic neuritis is exceedingly rare. These writers hold that the theory of separate inflammatory foci is not tenable, particularly in cases of spinal tumor. In a further series of cases to which Taylor and Collier refer, numbering 154, and including myelitis, new growth, hematomyelia, fracture dislocation, pachymeningitis, and spinal caries, the optic discs were normal in 135 cases, making neuritis present in but 19. Of these 18 were lesions affecting the cervical enlargement, one, the thoracic region, and in no case did lesions of the lumbo-sacral cord produce neuritis. There were but three cases of new growth; two in the cervical region, and one in the upper thoracic, but only one of these was verified by autopsy. Myelitis was associated with neuritis in eight cases, and these also were nearly all cervical. The lowest myelitic focus was at the sixth dorsal vertebra.

From these statistics it is clear that optic neuritis associated with myelitis is very infrequent but, particularly in view of the Bielschowsky cases,[7] is by no means unknown. But even in these the higher lesions of the cord are much more frequently associated with neuritis than the lower. The assumption, therefore, in our case, in view of the clinical symptoms, was in a measure justified that we were dealing with an inflammatory process rather than with a new growth. In this connection a case recently reported by Weisenburg and Thorington of syringomyelia with double optic neuritis is of interest. These writers refer to two other cases in the literature, and give as possible causes: first, an intracranial growth, and, secondly, internal hydrocephalus, the latter of which they regard as the more probable. In these cases undoubtedly the mechanism is exactly similar to that in our case, namely, an occlusion of the spinal canal in its upper portion by a distorted spinal cord, resulting in hydrocephalus, and consequent optic neuritis.

The condition is so unusual a one, and particularly in our case so completely eluded diagnosis during life, that it is well worthy of special mention.

ONSET OF PARALYSIS. The relatively sudden onset of paralysis of the lower extremities was a further source of confusion in the diagnosis. When I first saw the patient she had a beginning, very definite weakness of both legs, together with sphincter disturbances. In the course of a week or ten days this had progressed to a practically complete transverse lesion of the cord. Apart from the other considerations such an onset of paralysis naturally would lead, as it did in this case, to the supposition that a local, presumably inflammatory, condition, or one due to softening from vascular causes, was at the basis of the disturbance. In addition, one would not expect so sudden a loss of power as the result of the invasion of a tumor, although such cases have been described. The completeness of the paralysis is also worthy of special note. The patient had practically no consciousness whatever of the existence of her legs from the time the paralysis became complete up to the time of her death. There was absolute loss of both deep and superficial reflexes, no doubt explained either on the basis of complete destruction of the cord, or, more probably in this instance, by the actual invasion of the reflex arc by the new growth. It was not possible to bring the pregnancy into immediate relation with these symptoms of transverse lesion of the cord. The painless labor which followed shortly after the onset of the transverse lesion of the cord is further evidence of the complete destruction of the spinal cord at that time. The cessation of pain in the legs following the lumbar destruction was, of course, to be expected, but naturally threw no added light upon the nature of the destructive process. It is worthy of passing mention that bed-sores and other trophic disturbances in the legs were absolutely avoided.

LUMBAR PUNCTURE. Lumbar puncture was not done. There was no evidence whatever on the clinical side that a meningitis lay at the bottom of the symptoms, and for various reasons it seemed undesirable, unless there was special indication, to perform even so simple an operation as lumbar puncture for diagnostic purposes. Had such a puncture been made early in the disease it is altogether probable that a dry tap would have resulted, but very probably certain of the tumor cells might have been extracted with the needle, which would have assisted, if not definitely established, the diagnosis. Had this occurred it is possible that surgical interference might have been considered.

THE POSSIBILITY OF OPERATION. When the diagnosis of spinal tumor was definitely established post-mortem, the question naturally arose as to whether it would have been possible at any period of the disease to have operated with success. It must be remembered in considering this question that the patient was well advanced in pregnancy at the time the first irritative symptoms on the part of the sacral nerves appeared, and presumably would have been a poor subject for laminectomy. If, however, in spite of the pregnancy, such a procedure had been undertaken it is altogether improbable that the tumor could have been completely removed. Its growth

[7] *Loc. cit.*

evidently was extremely rapid, and it was clearly not encapsulated. Shortly after the onset of the first pain the disease involved a large area of the sacral nerves within the spinal canal, and it is highly improbable that a growth of this character could have been reached with sufficient thoroughness to have completely extirpated the disease. Naturally, under all the conditions the indication for operation must have been absolutely plain before any such procedure could with justice have been undertaken. Lumbar puncture might have given the information desired; that is, however, merely a matter of speculation. It is certain that when the tumor had attained to sufficient extent to involve the cord substance itself, which occurred in the latter part of December, operation could not have been undertaken with the slightest hope of permanent relief. The post-mortem examination did not definitely reveal the place of origin of the tumor, and in the absence of exact knowledge bearing upon this point it is unnecessary to speculate further as to the conceivable possibility of operation at any stage of the disease.

Interpretation of Pain. Apart from the diagnostic difficulties which this case presented, and their perfectly clear explanation by the autopsy, the matter of the interpretation of the pain is deserving of a few words of final comment. The patient unquestionably suffered extremely from the beginning to the end of her illness. In fact, it is hardly possible to conceive of a condition of affairs more calculated to produce pain of a most excruciating sort, than was found in this case. The various physicians who saw could not fail to recognize the fact that she was suffering constant discomfort, and often pain. They were, however, deceived as to the real extent of this pain, which undoubtedly was very much more severe than was supposed. Morphine was withheld, partly because of the wishes of the family, and partly because those in attendance felt that the pain could be controlled by less radical means. This was a mistake. Morphine should have been administered freely, and much more weight should have been given to the complaints of the patient who bore her suffering with heroism from the beginning to the end of her six months' illness.

THE CONTROL OF SYPHILIS AND VENEREAL DISEASES.*

BY PRINCE A. MORROW, M.D., NEW YORK.

I wish to express my sense of appreciation of the honor of being invited to appear before you this evening. I have accepted the invitation all the more willingly as it affords the opportunity of presenting before this representative body of medical men of Boston the general features of a plan of control which was inaugurated in New York, some eighteen months ago, by the American Society of Sanitary and Moral Prophylaxis, and I do this with the confident hope that a society similar in aims and purposes may be organized in this city.

It has long been recognized that the control of a class of diseases, which, in their genesis and mode of spread, are pre-eminently, social diseases, is the most difficult of all the problems of hygiene. These diseases are not only a grave danger to the public health, but, through their morbid irradiations, constitute a serious menace to the health and productive energy of the family, and thus become a powerful factor in the degeneration and depopulation of the race.

It is hardly necessary to spread before this body of medical men the pathological balance sheet of venereal infection in order to emphasize the importance of the subject for discussion this evening. Lest we forget the enormous debt created by these infections, and which humanity must pay in suffering, disease and death, let us glance for a moment at some of the more salient items in this exhibit. The mere inventory of the morbid conditions, chargeable to syphilis alone, would include entries from every department of pathology. A large number of morbid conditions formerly credited to other pathogenetic factors are now recognized as the product of syphilis.

Syphilis is met with, in some of its forms or manifestations at least, in every branch of practice. It furnishes a large contingent of morbidity in the practice of the neurologist, the gynecologist, the eye, ear, throat and nose specialists, as well as the internist in general medicine. The significance of syphilis as a danger to health and life is not measured by its immediate effects. Acquired syphilis rarely overcomes the citadel of life by direct assault; its rôle is that of the sapper and miner. It undermines the constitution, weakening its organic defenses and inaugurating changes which render it an easy prey to other forces of disease. It is especially in its late or terminal stages that its worst effects are manifest, in lesions which seriously compromise the integrity of organs essential to life.

In the sphere of the nervous system alone we may place to the debit side of syphilis 90% of locomotor ataxia, more than 75% of ocular paralyses, a large but indeterminate proportion of general paralysis, paraplegia and hemiplegia; 80% of all cases of paresis give a syphilitic history, — all affections of a serious nature and, for the most part, incurable.

The pathologic liabilities of gonococcus infections are scarcely less formidable. Less than a generation ago it was not suspected by the medical profession that in what was regarded as a trivial local disease of the urethra there lurked a germ possessed of such pathogenetic possibilities as we now ascribe to the coccus of Neisser,— a germ which is susceptible of being taken up into the circulation, causing serious articular and often fatal systemic complications; an infection, which, in respect to the character and sum total of its dangers constitutes a greater social plague, perhaps, than syphilis.

We are indebted to gynecologists for statistical

* Read before the meeting of the Boston Library and the Suffolk District Medical Society, Dec. 19, 1906.

evidence that it causes 80% of all deaths from inflammatory diseases peculiar to women, practically all the pus tubes, more than 75% of the suppurative pelvic inflammations and 50% of all gynecological operations performed by surgeons, to say nothing of the large number of women who are permanently invalided.

This pathological exhibit embraces only the direct damage to the health of the individual,—the personal risks of the disease. There is, however, another aspect of venereal morbidity and mortality which constitutes its peculiar social danger and gives to the work of prevention a distinctly humanitarian value. I refer to infections of the innocent and helpless members of society, from their introduction into married life. Unfortunately, marriage does not represent that asylum " pure and chaste " in which these infections find no port of entry.

Of syphilis it may be said that it is a most pernicious foe to the family; it is antagonistic to all that the family stands for. The function of the family is to create life, the effect of syphilis is to damage or destroy life. The function of the family is to produce children, healthy, well-formed and vigorous; the effect of syphilis is to so vitiate the process of nutrition that it results in beings blighted in their development and stamped with physical and mental inferiority.

Syphilis stands as the perfected type of an hereditary disease, the only disease which is transmitted in full virulence to the offspring. The bill of syphilitic heredity and mortality is appalling; it causes 42% of all abortions; 60% to 80% of all syphilitic children die in utero or shortly after birth; those that finally survive are the subjects of degenerations and organic defects which are susceptible of transmission to the third generation. Many look upon this as nature's scheme for the elimination of the unfit, but these children might have been born in conditions of physical soundness but for the syphilis of the parents.

The influence of gonorrhea as a depopulating factor is even more marked. A large proportion of gonorrheally infected women abort, while 50% are rendered permanently sterile.

The social danger of gonococcus infection is not limited to its influence upon pregnancy and conception; it is still further manifest in the infected risks conveyed to the offspring. A proportion variously estimated from 10% to 30% of all blindness is caused by gonorrhea, to say nothing of the vulvovaginitis, the arthritis and other accidental infections of children in family life. Such are some of the undeniable and scientifically demonstrated dangers of venereal diseases which render their prophylaxis the most important problem in preventive medicine that confronts us at the present day.

When there is question of the control of any infectious disease dangerous to the public health we naturally turn to those who are officially charged with this duty. But we perceive that there is on the part of these officials absolute inaction. It would seem an anachronism in the present era of preventive medicine that a class of infections which entail such a vast amount of morbidity should be wholly ignored by our sanitary authorities. What is the explanation?

I have elsewhere stated my conviction that the prevention of these diseases is not a purely sanitary problem, it cannot be worked out from the sanitary side alone; moral issues enter as an essential factor and cannot be ignored. When we examine more closely into the nature of these diseases we must recognize that while they are diseases of the human body, due to microbic invasion, they are in a special sense diseases of the social organism. Their spread is determined by social conditions which lie entirely without the sphere of sanitary control. Their communicative mode, intrenched in the stronghold of privacy, cannot be reached. They are not susceptible to the application of strictly sanitary measures.

Obligatory notification, the essential condition of sanitary intervention, is not practicable, it is opposed by both social sentiment and professional ethics; here the medical secret dominates the situation. The responsibility for this official inaction is thus shifted to the shoulders of the general medical profession and the public.

Now the public cannot be expected to seek deliverance from a danger which it does not appreciate and the significance of which it does not comprehend. The public has no adequate conception of the danger of these diseases and especially of their social dangers; the invalidism they produce, the sterility, the abortions, the blindness they cause, the vast mass of disease and misery they engender. The medical profession knows these facts and this knowledge carries with it a responsibility, a responsibility of which the medical profession cannot divest itself until it shares this knowledge with the public. The laity is clearly entitled to a knowledge of facts which so vitally concerns its interests.

Clearly, the first step in any real progress toward prophylaxis must be the education of the public and the creation of a social sentiment in favor of this preventive work. The fact that the public is averse to this enlightenment only emphasizes the necessity of a crusade against ignorance. It will be granted that public opinion has often a force much beyond its merits. There is no greater force for evil than ignorant public opinion, and a public opinion based upon tradition and prejudice is always ignorant. Witness the insensate fear of leprosy, and the barbarous inhumanity betrayed in the treatment of lepers in this country, notably in the case of the Syrian leper who was done to death by cruelty in West Virginia, so recently. Science tells us that a syphilitic or consumptive is ten times more dangerous as a source of contagion to others.

On the other hand, there is no greater force for good than enlightened public opinion. Witness the prompt and invaluable co-operation rendered by the laity in the crusade against tuberculosis.

Experience in dealing with other communicable diseases has shown that any infectious disease which is spread in the relations of family

and social life cannot be brought under control without the co-operation of the public, and the first and most essential condition of this coöperation is the enlightenment of the public as to its dangers to the individual and society; further, the public cannot give an intelligent co-operation without a knowledge of the conditions under which the disease is spread and the modes of its contagion, direct and indirect.

Another fact, developed by experience, and which finds its special application here, is, the more the spread of a disease is independent of environmental conditions, the more it comes within the control of the individual, the more essential this enlightenment. Venereal diseases are distinguished from all other infectious diseases by the fact that they are voluntary infections; they are contracted and conveyed to others by relations voluntarily entered into. But they are none the less *ignorant infections* and, in the opinion of the public, *benign infections*. The man who contracts venereal disease is either ignorant of the risks of exposure, or believes it to be a benign affair. The man who carries this infection into his family does it ignorantly and without full knowledge of its dangerous consequences.

The education comprehended in our program is, however, much more comprehensive than thus far indicated. This general enlightenment of the public as to the extent and dangers of these diseases is simply a preliminary, designed to create a public sentiment in favor of an education which shall be more radical in its nature and more efficient in prophylactic value. Many thoughtful men are beginning to recognize that the education of the rising generation in a knowledge of the laws of life and sex is most important, but they must also recognize that this is not possible without the consent and co-operation of the public. Our educational program proposes an innovation upon the established system of home and scholastic education, which shall take account of the sexual organization of the individual, the origin and facts of life and sex which are now regarded as forbidden subjects.

Time and space will not permit me to enter into full details of the scope of this education, the age at which it should be given and the agencies through which it should be imparted. The function of the medical profession is to insist upon the value of this education and supply the requisite knowledge, intrusting its practical application to those who command the facilities and are better qualified by experience and a knowledge of specific methods. This education should be begun early, before sensuality is awakened and the curiosity of youth in regard to the mysteries of life and sex takes on a dangerous turn. Upon this foundation should be built, later, instruction in the physiology and hygiene of sex which should include the true purpose of the sex function, its essential dignity, and further, that its impulses should be educated, controlled and directed in a proper channel. Later, he should be taught the dangers, both physical and moral, which come from the irregular exercise of the sex function. The high purpose of this education is to teach young men how to live according to the laws of a healthy nature by letting them know what those laws are. It aims to promote clean living by cultivating a right attitude of mind toward the passions and appetites; its essential object is to promote continence as the surest prophylactic against venereal infection.

This innovation proposes to substitute sound, sanative and wholesome knowledge of the sex function for the erroneous and demoralizing instruction the youth now receives from ignorant and often vicious sources.

The fruit of this evil seed sown in the fertile mind of youth is, and always must be, evil. Men do not gather grapes from thorns, nor figs from thistles. Medical men who have the opportunity of observing the practical results of a system of education which is organized on a basis of secrecy and silence in all matters pertaining to sex cannot too strongly deprecate the blindness of educators whose spirit and practice is to ignore this most important fact of life.

One of the noxious growths of this harvest of evil is the idea almost universally prevalent that sexual intercourse is a necessity to the health of men, and which is so deeply grounded that it becomes a sort of "obsessional belief." This idea, coupled with its natural outgrowth, that a man has a natural right to gratify himself in this way, constitutes, in my opinion, the most powerful determining cause of masculine immorality. The lax social sentiment which accepts and tacitly sanctions the "sowing of wild oats" as a natural incident in the evolution of the adolescent is a contributory cause.

I shall not attempt to say in what degree the medical profession is responsible for this false physiologic doctrine. It is the duty of medical men not only to repudiate, but uproot, if possible, the physiologic heresy that "using a prostitute" is a hygienic procedure by teaching what is amply verified by experience, that continence in young men is not prejudicial to health, but is compatible with the highest physical and mental vigor.

The so-called "sexual necessity" has been invoked as a physiologic basis of the conventional code of morals, expressed in the double standard of morality for men and women. As before intimated, moral questions enter as an important factor in the venereal problem, and cannot be ignored in any intelligent attempt toward its successful solution. In considering this question it is important to recognize the distinction between the social code of morals and the moral code taught by Christianity. The late Senator Hoar, of Massachusetts, in one of his last published papers, thus defines conventional morality: "We mean by morals the rules of conduct which govern men in the ordinary social relations, which do not, in general, depend for their sanction on religion on the one hand, or the law of the state on the other." "In speaking of actions as immoral, we speak in general of those condemned

by public opinion. The standard of private morals must be measured by the opinion of society," etc.

Now, the morality of many men, — I may say, of the average man, — is expressed in the formula that it is his private right to indulge his sexual appetite whenever and wherever he may find a receptive partner. This morality is accepted and tolerated by society, not theoretically, perhaps, but practically it is so tolerated, since no social stigma attaches to its practice.

While allowing himself the largest sexual liberty, man's standard of morality for women is quite different; he demands of woman entire abstention from sexual intercourse before marriage and absolute fidelity after marriage. Women weakly accept man's standard, and while not demanding or even expecting premarital virtue in men vainly imagine that the mere fact of marriage will transform the polygamous man into a monogamous partner. A change in relation does not, however, alter character. Doubtless, a certain large proportion of men are restrained by a sense of sexual honor from infidelity, but, unfortunately, a man seldom lives a life of impurity without consequences, and these consequences, introduced into marriage, make up the saddest chapter in the martyrdom of women. The thousands of virtuous wives who suffer in ignorance disease, sterility and mutilation of their bodies, and in whom the holy office of maternity is desecrated by the production of abortions, tainted and diseased children, should know that the standard of morality they now tolerate in the men they marry is the responsible cause. This knowledge should come through general enlightenment of the public.

It will be admitted that a marked improvement in public morals has taken place through publicity. Certain public, political and commercial evils are no longer tolerated; the standard of business probity has been elevated. But while social sentiment ostracizes the drunkard, it still gives a free charter to the libertine. This ethical awakening has not penetrated the realm of private morals; man's morality is still the traditional morality, a survival of the domination of the strong over the weak, and based upon the theory of property ownership in women.

There can be no question that this traditional standard of private morals enters as an important etiological factor in the spread of venereal infection. It is believed that the education of the public along the lines already indicated — the exposure of the magnitude of the venereal peril, its significance as a social danger, the havoc wrought in the home and family — will do much in creating a public sentiment which will no longer tolerate these evils nor sanction the standard of morals of which they are the outgrowth. There is need to educate, not only the intellect but the conscience of the people, which shall recognize a moral responsibility in sex relations and which shall develop a higher sense of sexual honor among men to the women they marry, and of fidelity to the interests of the unborn.

The medical profession has a grave responsibility in this regenerative and uplifting work. In so far as the existing standard of private morals rests upon a false physiologic foundation, it should be swept away.

It may be said that it is not the province of the physician to teach morals; many physicians claim that we should eliminate all questions of morality and study this problem solely from the standpoint of the sanitarian. I make no apology for the intrusion of this educative work in the domain of morals. The successful solution of the problem of prevention can never be approached from the sanitary side alone. Social morals and social diseases are indissolubly linked on the relation of cause and effect. Here, at least, public health and public morals are one and indivisible. Whatever makes for morality is a distinct gain in the diminution of venereal infection; reciprocally, all hygienic teaching which conduces to clean living makes not only for the physical but the moral health of the individual and society.

TREATMENT.

The prophylactic value of this purely sanitary measure is so generally recognized that it is scarcely necessary to insist upon it. While the primary and specific object of treatment is to cure the patient, the prompt sterilization of sources of contagion; prevents infection of others; moreover, the treatment of the patient affords the opportunity of instructing him in regard to the danger of the disease to himself and others, the laws of its contagion, especially the duration of its contagious activity and its modes of communication. The physician but half fulfills his duty by merely prescribing for the patient while omitting this instruction.

It will be admitted that the existing provisions for the treatment of this class of cases are insufficient and badly organized for the purpose. Venereal patients are discriminated against or barred from admission to general hospitals while no special hospitals are provided for their reception.

In an investigation made by myself, not long ago, into the organization of our present hospital system with especial reference to this class of cases, letters were addressed to leading genito-urinary specialists in all the large cities in this country. The replies showed that there was but one single special hospital in the United States for these diseases, and that this was not used exclusively for this purpose. New York City provides only twenty-six beds for female and something over twice that number for its male patients, suffering from these diseases in an acute form. I may refer to one or two gross abuses growing out of these insufficient hospital accommodations, coming under my personal observation in the City Hospital. Respectable married women infected by their husbands are compelled to inhabit the same ward and sleep in beds side by side with the most abandoned prostitutes. A young girl who may have taken only the first step in the downward path and has been robbed

of her virtue and her health at the same time is not likely to be reclaimed after being exposed to the demoralizing influence of these adepts in vice; young girls, under fifteen years of age, when found diseased, usually from criminal assault, who come under the care of the Society for the Prevention of Cruelty to Children, are placed in this same ward and detained until cured.

Fortunately, the vast majority of this class of patients are ambulatory and require only dispensary treatment. The dispensary services, are, as a rule, not organized with reference to the peculiar shameful nature of venereal diseases in popular estimation. The conditions are such as to repel rather than attract this class of patients, as the nature of their disease is apt to be suspected or positively known by the other occupants of the waiting room. Under these conditions it is not surprising that so many venereal patients seek the seclusion of the out-of-the-way office of the advertising quack or prefer the secrecy assured by a sealed package of medicine whose inviolability is assured by the United States Postal Department.

The prophylactic value of treatment may be vastly improved by a reform of these and other abuses. What is required are enlarged facilities for treatment which shall be gratuitous, which shall be convenient and available and which shall be adapted to the private nature of the disease.

Social prophylaxis embraces measures of a general order which relate to social causes and conditions that favor the spread of venereal infection. It is evident that no comprehensive scheme of prophylaxis can be framed which ignores the chief source of these diseases and the agency by which they are commonly propagated, viz., the social institution known as prostitution.

Since moral, as well as sanitary, measures enter as component parts of this scheme of prophylaxis it does not include the system of *réglementation* employed in continental countries. Apart from objections on moral grounds and the hostility of public sentiment in this country to its adoption, it is condemned by its practical results, it does not materially diminish the sum total of venereal morbidity in countries where it has been most perfected and longest employed.

So far as relates to prostitution as a social institution it is proposed to take up the study of the underlying causes, material and economic conditions, etc., and present the results of this study for the education of public opinion. The essential object in view in dealing with the social evil is to prevent the *making* of prostitutes by correcting, as far as possible, the conditions which lead to prostitution. The making of prostitutes may be prevented in a measure by protecting young women against seduction, not only by education, but by safe-guarding minors in every possible way. By combating proxenetism in all its forms and severely punishing the purveyors of prostitution in whatever guise they are found, whether the cadet, the white slave trader or the employment agent.

The industrial and occupational dangers of young girls of the working classes and other conditions of living which lead to prostitution come within the scope of this prophylactic work.

It is evident that the problem of prevention is most complex in its causes, and that sanitary measures must be supplemented and reinforced by influences and agencies which can more effectively intervene in the correction of the conditions under which these diseases are spread, and for this purpose it is necessary to enlist the co-operation of all the social forces which work for good in the community. Hence the necessity of a society, composite in character, which shall embrace in its membership medical men, representatives of the clergy, of the law, educators, sociologists and public-spirited citizens interested in the social welfare.

In closing this paper which has extended beyond the proposed length, I may refer to the work done by the society organized in New York last year, and indicate briefly what has been learned and what has been accomplished by eighteen months of experimental work directed thus far chiefly along educational lines.

In the first place, we have learned that the work is most difficult, and that it is necessary "to labor and to wait" for results. The late William H. Baldwin, chairman of the Committee of Fifteen, who was consulted in the organization of this movement and who was profoundly impressed with its importance and deeply solicitous of its success, advised us "to go slow." This advice was entirely unnecessary, and, in the light of present experience, appears almost ironical. "To go slow" is the only mode of locomotion.

We have found:

On the part of the mass of the medical profession a general recognition of the importance of this work, a practical unanimity of sentiment as to the necessity of doing something towards checking this evil, but a more or less pronounced incredulity as to its accomplishment. A certain large and influential element, I may almost say, the best element, in the medical profession of New York City, has given its moral support by becoming members, a still more restricted number are giving their active co-operation. A few are openly hostile, deprecating any attempt to make public evils which they claim ought, in the interests of decency and social propriety, to be concealed.

On the part of the general public an indifference, evidently the consequence of ignorance, and this on the part of many persons of superior intelligence in other matters — public-spirited citizens, prominent in social work, and whose co-operation would be invaluable — a reluctance to identify themselves with this movement, an aversion to personal engagement in this work because of its unsavory character. At the same time, a large number of the very best men in every department of social life have given in their adhesion, doubtless impelled by a sense of duty; one distinguished divine declares that his conscience compelled him to join in this movement.

On the part of educators, and, especially, directors of physical training in schools, colleges, asso-

ciations and settlements, — men who have the opportunity of observing the evil results of our faulty system of education,— the keenest appreciation of the educative feature of our program.

Finally, on the part of the public press, a veritable Chinese wall of traditional prejudice, which closes any advance to publicity in this direction. Editors of newspapers are most loyal champions of the "conspiracy of silence." One notable exception, the *Charities and Commons*, has given us most effective support.

What has been accomplished? It is, perhaps, premature to expect definite results. The mere agitation of this subject has been of immense service in awakening the perceptions of both the medical profession and the people to the magnitude of a social danger which social sentiment and professional ethics have always united to cover up and conceal.

Societies with similar aims and purposes have been organized in various cities, Detroit, Chicago, Milwaukee, Philadelphia. The society in Philadelphia has over seven hundred medical men in its membership. Many district medical societies are now taking up this work.

The policy of frank and open discussion of these forbidden topics inaugurated by our society has given courage to many of the laity to break with traditional restrictions and to speak out their innermost convictions.

The molding of public opinion to the importance of this work is as yet only in the formative stage, but the receptivity of the public mind to the knowledge we wish to convey is a most cheering indication. This society is receiving from serious-minded men and women all over the country requests for literature which shall throw more light on the situation. The indications are unmistakable that a sentiment in favor of this work is deep, wide-spread and constantly growing.

There have been numerous demands from societies, schools, settlements and various social groups for lecturers who shall give talks to young men. The extension of the educative work of the society in this direction has been made possible by the generous contribution of two of our members toward the establishment of a lecture fund, which will not only enable us to supply existing demands, but still further expand the work of this society, by organizing a regular system of lectures, in various parts of the city. It is proposed to employ as lecturers only those who are specially fitted for this delicate and important work.

I fear that I may have overtaxed your patience in this exposition of a system of prophylaxis which is planned along the lines recommended by the last Brussels Congress and has been adopted by the American Society with material modifications and additions, and which may be still further modified, and, it is hoped, improved, with the larger wisdom gained by practical experience. No one knows better than myself that it does not realize the ideals of a perfect system. It presents the advantages, however, of being practical, available and promises to be effective in limiting at least the evils we wish to prevent. In dealing with this important problem of social hygiene, the solution of which has always been the despair of sanitary science, it substitutes interest for apathy, action for inaction, the energy of hope for the impotence of despair.

Massachusetts General Hospital.

CLINICAL MEETING, JANUARY 11, 1907.

DERMATITIS EXFOLIATIVA AND DERMATITIS HERPETIFORMIS.

BY H. F. TOWLE, M.D.

THROUGH the courtesy of Dr. C. J. White I am enabled to show these two cases from Ward G:

CASE I. *Dermatitis exfoliativa.* — The first is a case of dermatitis exfoliativa developed from an obstinate form of psoriasis of eight years' standing. During this period the psoriasis showed moderate remissions and exacerbations but never disappeared. The lesions, which were always very abundant and have covered a large proportion of the body area, varied in size from a pin's point, scale-capped papule to very large, thick, red, scaling plaques. The general health has been good throughout, and aside from the mechanical discomfort produced there have been practically no subjective symptoms. Twice during this time a universal dermatitis developed which resembled the present attack exactly and from which the patient made a complete recovery. It is a striking fact that chrysarobin had been used before each of these attacks, although, before the last at least there was no marked reaction apparent. On Sept. 11 when the patient was admitted to the ward he had a typical but very extensive eruption of psoriasis. Not long after admission it was noticed that the lesions were growing much redder and were enlarging peripherally. This extension has continued steadily until at the present time the whole body surface is involved, with the exception of three or four thumbnail areas. Other changes in the skin have accompanied this process of extension. There have been attacks of an intense general hyperemia lasting from one day to a week or more. Occasionally moderate malaise and a local feeling of heat and tension have accompanied them. After a variable interval the hyperemia would subside quickly, to be replaced by a duller red or, on some occasions, by a brownish color. The scales also have shown great and often rapid variations. As the disease extended, the characteristic psoriatic scales were gradually replaced by thin, gray-white flakes attached by one edge and easily removed. Suddenly the scaling would become branny and as suddenly flaky again. The changes in the character of the scales have corresponded in a general way to the changes in the intensity of the hyperemia. The more intense the hyperemia the smaller the scales were apt to be. The attacks of hyperemia have gradually become rather less frequent, and the skin, which was formerly much infiltrated and stiff, has become thinner and more pliable. The temperature was irregular during the first few weeks, sometimes rising as high as 101°, but no exact relationship could be established between the variations in the temperature and the cutaneous manifestations. For the past six weeks the temperature has shown very little variation from normal. Shortly after the extension of the disease set in the glands enlarged

generally and have remained so ever since. About one month after entrance a number of irregularly quadrilateral grayish plaques appeared on the dorsal surface of the tongue which were thin, well defined, and not elevated or tender. There has never been much general itching, although from time to time the patient has complained of local itching, chiefly on the back, and especially when the scales were large and abundant. Several weeks ago a tender area appeared at about the middle of the anterior surface of the right thigh. There were no objective symptoms and the tenderness disappeared gradually. Similar areas of tenderness occurred on the lower legs and once on the palms and soles. Physical examination of the chest and abdomen has been negative. The urine and blood show nothing abnormal. During the first weeks the patient lost weight, but recently he has been gaining steadily.

Case II. *Dermatitis herpetiformis.* — J. W. S., aged ten, was admitted to the ward Sept. 15, 1906, with a bullous eruption on the chest, arms and legs. There is no history of a similar or any other skin disease in the family. Except for the present affection the patient has never had any serious illness. Six months before the first appearance of the eruption the boy was vaccinated. The sore pursued the usual course except that a swollen gland appeared in the left axilla, which has remained enlarged up to the present time. Five weeks before admission vesicles suddenly appeared on the arms and later on other parts. There was no itching although where the lesions were numerous and confluent there was considerable pain after they had ruptured and crusted. There has been no disturbance of the general health. Upon admission the internal organs were found to be normal. The urine was also normal. The skin of the whole thoracic region, front and back, was covered with vesicles and bullæ which varied in size from a small pea to a small marble. Some were intact, others were ruptured, crusted or superficially ulcerated. There was no tendency to grouping. Similar lesions existed on the flexor surfaces of the arms, scattered over the thighs and legs and on the genitalia. Since admission there have been constant crops of lesions, sometimes only a few at a time and sometimes many and in groups. New lesions have appeared on some occasions before the old had disappeared, while at other times the new crops have been preceded by intervals of freedom varying in length from a few days to a week or two. During the longer of the intervals the old lesions would dry up into a crust and disappear so that at the time of the fresh outbreak nothing remained of the old except purplish plaques on their sites. The type of lesions has varied from small to large, from scattered to discrete, but the majority of lesions in any one crop have usually been of the same type. Some crops were made up of small pea-sized globular lesions, tense, thin walled, with clear contents and springing from apparently healthy skin. Other crops showed a marked tendency to confluence and to the formation of large bullæ. In one instance the eruption, particularly over the feet and ankles, showed a distinct annular arrangement. First, pea-sized vesicles appeared in a ring which soon became confluent about a central area of uninvolved skin. Then the epidermis was uplifted in the center and a large bullæ resulted. Itching has never been a prominent symptom, although there has been pain where there were large areas of crusted lesions. The temperature has shown considerable elevation at times and has often corresponded or even anticipated a new outbreak. The glands which are markedly enlarged generally are smooth, firm and not tender. In size they vary from a small marble up to an olive. The gland in the left axilla, which is said to have resulted from the vaccination, has pushed the overlying skin into a rounded prominence the size of a grape. The skin shows no change in color or texture and the firm, non-tender gland is freely movable beneath it. The blood, the contents of the vesicles and smears made from the bases of opened vesicles and bullæ have been examined for eosinophiles repeatedly, but the marked increase in these cells which many writers have reported was not found except in the last examination made Jan. 9. Up to this time the number of eosinophiles had varied from 1% to 3%. At this last examination they were found to the amount of 14%. The disease at this time was quiescent and no new lesions had appeared for several days. The hemoglobin has varied from 100%, shortly after admission, to 80% Dec. 24. The reds ranged from 5,520,000 to 3,800,000; the whites from 5,200 to 9,200. The polynuclear leucocytes have been decreased during the periods of cutaneous activity and increased in the periods of quiescence with a corresponding increase or decrease of the mononuclear elements, chiefly the small. The general health has been good. The regions especially affected have been the dorsum of the feet, the ankles and the lower parts of the legs, the fronts of the knees, the genitalia, buttocks, chest and wrists, although sparse lesions have appeared on other parts of the extremities, on the abdomen, back, face, about the mouth and a few on the mucous membrane of the mouth.

CHRONIC ENLARGEMENT OF PROSTATE GLAND: SUPRAPUBIC SECTION AND ENUCLEATION.

BY H. H. A. BEACH, M.D.

A single case of prostatectomy is presented for those who may not be familiar with the technic of Fenwick, published in 1904; later in 1906.[1]

He believes that the usual technic employed is faulty in tending to the sacrifice of the orificial ring at the internal meatus, the prostatic urethra and the efferent seminal ducts. Whether the suprapubic or perineal method be employed, neglect of this precaution will leave the patient with a narrow or warped vesical orifice due to cicatricial contraction with its miseries and dangers. His plan is to begin the separation by inserting the finger to the first joint in the prostatic urethra. The end of the finger is then bent and pushed through the mucous membrane which usually gives way before the pressure. At once, the finger finds itself between the tough capsule of the gland and the contained adenomatous masses, travelling on without much opposition until the entire lobe is enucleated and generally stripped off from the urethra. Especial care is employed in detaching the lobe from the floor and sides of the urethra and the triangular ligament. The opposite lobe is removed in a similar way. Fenwick employs no instrument after the bladder section.

My patient entered the accident room with complete retention. He was seventy-one years old and for twelve years had observed that his stream was slowly diminishing. One day after a long drive he was unable to expel more than a few drops. His physician relieved him for the time with a catheter. On entering the hospital, the distended bladder reached half way to

[1] Jour. Am. Med. Asso., Oct. 13, 1906.

the umbilicus. On rectal examination the prostate was found enlarged. Thirty ounces of bloody ammoniacal urine was drawn by catheter and constant drainage maintained for a week.

At that time the catheter was withdrawn but he was unable to pass any urine, and the bladder gradually refilled. Constant drainage was used for another week with a similar result.

Oct. 16, Suprapubic section: in Trendelenberg position general prostatic enlargement found, with a firm ring around the vesical orifice. Two lobes, each of the size of a hen's egg, were removed in the manner described. The left hand was used to support the rectal side of the growth during that part of the enucleation. The bladder was carefully cleansed and the wound closed around two catheters reaching to the base of the bladder for irrigation and drainage. They were removed in a few days and a catheter substituted in the urethra. The latter was removed as soon as the suprapubic wound closed. His temperature reached 103° on the second day after admittance, after which it had no important significance.

His residual urine on leaving the hospital was less than half an ounce. He does not use the catheter, but passes urine with certainty and comfort. It is now within five days of three months since the operation and he informs me that he has full control of the function.

PERFORATING DUODENAL ULCER: OPERATION.

BY H. H. A. BEACH, M.D.

THE patient, a man twenty-nine years old, entered the accident room with severe abdominal pain. His father died of a "stomach trouble" lasting six months; his mother, at the age of forty-nine, of "tumor of the side." In good health until three years ago when he entered the Massachusetts General Hospital and was treated for gastric ulcer. He vomited blood several times but was free from pain. He rapidly improved and was discharged well at the end of a month.

He had remained well until last night when he had a sudden attack of very sharp pain beginning in the epigastrium and rapidly spreading to the right lower quadrant of the abdomen. He was nauseated but did not vomit. The pain has persisted in spite of the use of morphia, and is most severe in the epigastrium. The bowels moved yesterday. Temperature, 100°; pulse, 120; leucocytosis, 12,200. Patient in a marked state of shock. His abdomen not distended, but board-like in its rigidity. Tympanitic except for slight shifting dullness in the flanks. Extreme tenderness everywhere, increased toward the epigastrium and appendix region. Incision of four inches through the right rectus above the umbilicus. Considerable free turbid fluid. Intestines reddened and injected. In places covered with flakes or fibrin. On the posterior surface of the duodenum half an inch below the pylorus, was a punched-out hole one eighth of an inch in diameter, from which was pouring intestinal contents.

The hole was closed by a pursestring suture of fine kangaroo tendon. The intestine surrounding the ulcer was not thickened but rather soft, making the suturing difficult. A piece of omentum was sutured over the closed ulcer. The abdominal cavity was then thoroughly washed out with sterile salt solution. Drainage wicks placed behind the duodenum, at the site of perforation and toward the pelvis. Nutrient enemas at first and liquid diet after three days. Nutrients omitted on the fifth day. Soft solids on the sixteenth day. His condition improved, though a temperature persisted until a counter opening in the right flank provided a lower exit for drainage. His wounds had become superficial. Temperature normal and for a week he had been up, when he had a sudden rise of temperature with dullness in an area of between four and five inches on the right side above the costal border and pain between the ribs. On the following day another normal temperature with a gradual rise toward noon and some thick glutinous expectoration, grayish-green. This morning his temperature lowered. Aspirated the region with a negative result. To-night a temperature of 101°.

The patient has since been discharged from the hospital "well."

The symptoms of this case, pain and muscular rigidity, were not sufficient to establish a diagnosis, but they did warrant an exploration of the abdomen, lest some condition that could be remedied, should pass the stage when relief was practicable.

Adding the previous history of gastric ulcer, the presumption was clearly in favor of investigation, though there was no corroboration by internal or external hemorrhage in this attack. With or without that evidence the patient in these rare cases is entitled to the benefit of the doubt as in certain obscure forms of appendicitis, acutely septic gall bladder, twisted ovarian pedicle, adhesions and bands imperilling the pregnant uterus or other viscera, doubtful reductions of herniæ, partial ruptures of the bladder and questionable conditions of the Fallopian tubes.

If in some instances the operation is not always justifiable through the facts obtained, the experience gained in learning what not to attempt may have a definite value in restricting unnecessary interference in future work. Such experiences may be relied upon to develop the best and truest conservatism.

The etiology of duodenal ulcer from the time of Curling has closely associated the lesion with burns and scalds, though its observance in tuberculosis, frost-bite, Bright's disease, heart disease, septicemia, enteric fever, may be more than a coincidence. Without the evidence of partial or complete perforation its recognition as in the past must be most uncertain — without operation or autopsy. The proportion of 6 duodenal ulcers to 225 gastric ulcers and the occurrence of the great majority of duodenal ulcers in the upper section of the duodenum where the acid food has not yet been modified by the alkaline pancreatic secretion explains the tendency to group them with ulcerations of the stomach. This clinical association is emphasized by the similarity of treatment after perforation. If intestinal ulcerations are a pathological sequence of septic absorption from gangrenous skin surfaces, they supply a strong argument for a strict asepsis of all burns with the view of averting this fatal lesion in cases where it may reasonably be anticipated and with which they are most frequently associated. I believe that at present such asepsis is commonly inadequate, and deserves the careful consideration of surgeons.

PERFORATING TYPHOID ULCER: OPERATION.

BY H. F. VICKERY, M.D., AND FARRAR COBB, M.D.

CLINICAL REPORT.

BY H. F. VICKERY, M.D.

The patient, a boy of Italian parentage, born and living in Boston, ten years old, entered the hospital under my care, Sept. 23, 1906, with a large spleen and a positive Widal reaction, having already been ill two weeks. His fever was apparently about to end when it exhibited a recrudescence, Oct. 1, the twenty-second day of the disease; but he did well until Oct. 17, the thirty-eighth day, at about 6 P.M., when at the end of a bath he complained of abdominal pain. I saw him about three and one-half hours later. He had not vomited. The face looked anxious and somewhat drawn. The pulse tension was only 85 mm. The legs were drawn up. There was slight rigidity of the lower portion of the recti muscles. The white corpuscles numbered 5,600, as compared with 2,500 on entrance. In the last twelve hours the temperature had risen from 99° to 104°, the pulse from 125 to 164 and the respiration from 25 to 40. At my request Dr. Farrar Cobb was with me and concurred in the diagnosis of perforation and the decision that operation was indicated.

SURGICAL REPORT.

BY FARRAR COBB, M.D.

The operation was done at the first part of the fourth week of the typhoid fever. The case was one of a typical sick typhoid in a boy about eleven years of age, the temperature often reaching 105°. There had been no intestinal hemorrhage at any time. On the 17th of October, at 5 P.M., the patient complained of severe abdominal pain. At this time some tenderness and rigidity on the right side of the abdomen were noticed by the medical house officer. The pain increased during the next two or three hours and was accompanied by a sharp rise in pulse and temperature. There was no leucocytosis, the blood count showed only 5,600 leucocytes. The patient was seen by me, in consultation with Dr. Vickery, at 9.30 P.M., about four and a half hours after the first complaint of pain. He was in poor condition with a very rapid, feeble pulse. The decision to operate was made upon the pain and the tenderness and rigidity on the right side of the abdomen, most marked in the right iliac region. The operation took place about six hours after the first complaint of pain. Upon opening the abdomen a large amount of turbid fluid was found. A round punched-out perforation in the small intestine was found about eighteen inches above the ileo-cecal valve; this was closed with a pursestring suture of Pagenstecher linen thread. The abdomen was washed out with hot normal salt solution, the wound was closed with through-and-through sutures of silkworm gut, except that a small cigarette drain into the pelvic region was left at the lower end; this drain was removed on the fourth day after the operation and was not replaced.

The patient made an uninterrupted recovery and at no time after the operation showed any signs of typhoid. His temperature came down to normal the day following the operation and remained practically normal through his convalescence. As you see the case here to-night, he is in robust health and in excellent nutrition. It was possible, because of favorable circumstances, namely, thorough preparation before anesthesia, thinness of the abdominal wall in a small boy and good fortune in almost immediately finding the perforation, to do this operation with extreme rapidity, — the time of the anesthesia did not exceed fifteen minutes. No attempt was made to find a second perforation. The anesthetic used was ether.

It should be noted that this is one of the occasional cases in which perforation did not cause leucocytosis.

CANCER OF THE STOMACH: GASTRECTOMY.

BY FARRAR COBB, M.D.

To be accurate the term partial gastrectomy should be used in relation to this case. About three fourths of the stomach, including the pylorus, was excised. This case furnishes a strong argument for exploratory operation in apparently hopeless cases of cancer of the stomach, and illustrates forcibly the fact that certain knowledge of the extent of the disease and the possibilities of its complete removal cannot be gained by any other than operative methods. This man here before us to night is apparently in perfect health and hard at work, over a year after his operation. When first seen it was thought, because of the severity of his symptoms, his emaciation and the distinct large epigastric masses, that only a palliative gastro-enterostomy could be done. After opening the abdomen it was found possible to completely excise the disease with a wide margin of sound tissue.

The case is interesting from a pathological standpoint because the cancer started in an old ulcer, and in addition there was, at some distance from the cancerous ulceration, another ulcer which, on microscopic examination, proved to be non-malignant. The presence of the two ulcers has been shown by Mr. Aitken in the drawing which I will pass around. The reconstructed stomach has been cut open from behind so that one is looking at the inner surface of the anterior wall where the disease was located. The large, irregular ulceration with thick edges was found, on microscopic examination, to be typical adenocarcinoma. The smaller area, somewhat removed from the malignant disease, was a nearly healed benign ulcer.

The patient entered the South Service on Dec. 19, 1905, referred by Dr. Hewes of the Out-Patient Department. He was fifty-three years old. Seven months before entrance he began to have severe pain in the epigastrium, worse after eating. Up to this time he had considered himself perfectly well and it was not possible to obtain any history of digestive disturbances previously. There was progressive loss of weight and strength. Six weeks before entrance he began to vomit and continued to vomit several times a day, mostly undigested food. He had no recollection of vomiting blood, but stomach washing after he entered the hospital brought away dark coffee-ground material with considerable mucus and the Guaiac test showed the presence of blood. He was much emaciated, weighing but 108 pounds. In the epigastrium a distinct, hard mass, somewhat movable, could be palpated. On inflation the stomach seemed somewhat small and contracted. Free hydrochloric acid was present in small amounts. Physical examination in other respects revealed nothing abnormal. At the operation the anterior wall of the stomach in its middle portion, especially near the greater curvature,

was occupied by hard nodular masses, in fact the whole of the anterior wall seemed, for a space as large as the palm of one's hand, infiltrated with malignant disease. There were no adhesions; no metastases could be felt in the liver or in the glands above and below the stomach, except that two or three of the glands in the greater omentum were enlarged.

The steps of the operation can be seen fairly well in the sketches which I will pass around. About three-fourths of the stomach with the pylorus was removed. There are only one or two special points in the operation that I should like to call to your attention. It was possible to meet the duodenum and the stump of the stomach without much tension; therefore all idea of complete closure of the cut surfaces and the making of a gastrojejunostomy was abandoned. Continuous sutures of chromicized catgut through all the coats of the stomach were first used followed by a continuous Cushing suture of Pagenstecher linen thread. It was found necessary to use a few additional interrupted Lembert stitches.

For forty-eight hours nothing was given by mouth. Nutrient enemata and salt solution were given by rectum. On the third day the patient was allowed water and albumen water and black coffee by mouth in small amounts. He was kept on liquid diet fos fourteen days. The abdominal wound healed satir-factorily. He left the hospital one month after the operation, apparently well.

PHYSICAL THERAPEUTICS AT THE MASSACHUSETTS GENERAL HOSPITAL. OPENING OF THE HYDRO-THERAPEUTIC DEPARTMENT.

BY MAX BÖHM, M.D.

ON the first of January, 1907, the resources of the Massachusetts General Hospital for the treatment of its patients were enriched by the addition of two therapeutic methods. I refer to the introduction of Wright's vaccine treatment and to the opening of the hydrotherapeutic department. With the establishment of the latter the hospital has made a further step in the direction it has been working now for some years, namely, to give physical methods in the treatment of disease their appropriate place beside the older established means, namely, surgery and pharmacotherapy.

While up to 1900 the latter were used almost exclusively, since then, more and more, physical therapeutics have been introduced.

On Jan. 1, 1907, the facilities for physical treatment at this hospital were the following: 1. Electro-therapeutics: faradic, galvanic, static electricity; high-frequency since 1902. 2. Radio-therapeutics: x-rays since 1898; modified Finsen lamp since 1903. 3. Mechanotherapeutics: complete Zander outfit with additional pendulum apparatuses for passive motions since 1904; manual massage, given by one chief masseuse with several voluntary assistants since 1904; Frenkel's co-ordination treatment since 1904. It is now interesting to compare the number of patients treated by pharmacotherapy during the last six years in the out-patient department of this hospital with the number treated by physical means.

Such a comparative study may be made in the following tables:

Year.	Number of Prescriptions Filled in the Drug Store of Out-Patient Dept.	Daily Average of Patients Treated in Out-Patient Dept.
1900	68,143	298
1901	61,849	305
1902	58,177	290
1903	55,285	312
1904	53,321	347
1905	49,793	362
1906	43,063	325

According to this table which is derived from the annual reports of the hospital the yearly number of pharmacotherapeutic prescriptions given to out-patients has decreased inside of the last six years more than 25,000, although the number of patients has increased.

On the other hand, according to statements made by those in charge of the different departments where physical treatment is given, there have been treated daily during 1906 in the out-patient department of this hospital exclusively or chiefly by electricity an average of 6 patients a day; by high-frequency, 2; by x-rays, 6; by mechanotherapy, 26; by Frenkel's treatment, 2. Total by physical means, an average of 42 patients a day. That means that during 1906 about every seventh out-patient was either entirely or chiefly treated by physical therapeutics. Undoubtedly this number will increase still more now that the hydrotherapeutic department is established. The hospital owes this equipment to the munificence of Dr. Charles G. Weld and to the trustees of the Blake fund, — Dr. James J. Putnam and Mr. Moorfield Storer.

The new department contains, (*a*) Air baths: electric light cabinet (48 lights); two hot-air and steam cabinets; local hot-air baths. (*b*) Baths: large tub for the use of full bath, half bath, carbon dioxide (Nauheim) baths, etc. Sitz bath. (*c*) Douches: spray douche; circular douche, rain douche, jet and fan douches; ascending douche. (*d*) Mechanical applications: facilities for "Teilwaschungen," wet sheet rubs, douche massage, plain massage and resistive motions. A hot-air chamber and a room for inhalation therapy are provided. With this new addition the hospital possesses now a complete equipment for physical therapeutics unequal on this continent. If this fact gives us a certain amount of pride it lays on the other hand upon the men working on this hospital great responsibilities and duties.

Every American medical man travelling in Germany is struck by the high development of physical therapeutics there; he is surprised to see that this branch of treatment enjoys there the same scientific character as the other therapeutic methods; that there are institutions for hydrotherapy, mechanotherapy, etc., connected with the medical schools and that even hospitals of the smallest size possess some outfit in this line. The public is more and more educated not to ask the doctor for a drug prescription but to receive in the first place instructions for leading a hygienic life, which end is chiefly accomplished by physical means. There are all over Germany numerous private sanatoria and similar institu-

tions for physical therapeutics where thousands and thousands of patients are treated and the increasing number of these establishments points out that this form of treatment produces success.

Now it is no secret to you that the conditions in America are different. The chief difference is that in this country physical therapeutics do not rest upon a sufficiently scientific basis. Medical schools do not teach them; thus students leave school without knowing the physiological basis of these treatments and their indications and consequently make very little use of them in practice. The result is that non-professional men take them up, and although they apply them indiscriminately a certain amount of success results. For instance, I have very little doubt that this is the genesis of osteopathy. Such conditions are very apt to discredit physical therapeutics in an undeserved way.

An improvement of these conditions is decidedly necessary, and there we return to our starting point. An institution like this hospital with such a complete outfit for physical therapeutics can demonstrate to the profession their value in the treatment of various diseases, can take from them the bad name they at present frequently bear by placing them upon a scientific basis. To accomplish this task students and post-graduates should be taught the physiology and indications of the various branches of physical therapeutics, their technique and last but not least, methods of simplifying the elaborate technique of the hospitals for private practice. In such a way physical therapeutics should become common property of the medical profession as well as pharmacotherapy and the other branches of medical treatment.

The question how this end could best be reached was raised when the new hydrotherapeutic department was organized. In particular the question came up how the new department should be conducted and how physiology, indications and technique of hydrotherapeutics should be taught. Naturally, the system employed at present in the mechanotherapeutic department was considered in the first place. There the treatment given to referred cases is as well *prescribed* as carried out. Now, gentlemen, such a system has many advantages, as the result shows, but involves two disadvantages. In the first place it fails to make a larger part of the profession intimately acquainted with the subject, since it leaves practically everything to one man. The second disadvantage seems to us the following.

In Europe we find frequently that specialties resulted based upon certain lines of medical treatment. Thus we see there specialists for physical treatment in general, and furthermore such for its different branches as, for instance, specialists for hydrotherapeutics, for mechanotherapeutics, for radiotherapeutics, etc.

Having some experience in physical therapeutics for now about five years I believe that these specialists may be very able to teach the technique but are not the ones to give proper instruction in indications and results of physical therapeutics; for if a man is only working in a certain line of treatment for a number of years he loses more or less the sight of the results obtained by other forms of treatment and thus cannot help but acquiring a considerable amount of one-sidedness. Furthermore, a therapeutic specialist would have to be an all-round diagnostician to draw strict indications for the use of his special treatment in the different branches of medicine. For it often requires a great deal of diagnostic skill and experience to state exactly in a disease that this and no other form of treatment will help.

On the other hand, for a specialist thoroughly familiar with his line of work it will be a comparatively easy matter to determine which cases are suitable for a certain treatment and which not, provided he possesses the knowledge of the physiology and somewhat of the technique of this treatment, both of which are very easily acquired.

Starting from such considerations and particularly trying to avoid the two mentioned disadvantages we suggested to the hospital authorities to conduct the new hydrotherapeutic department in the manner set forth in the following circular:

The Hydrotherapeutic Room in the Out-Patient Department will be open for patients Tuesday, Jan. 1, 1907. The purpose of this room is to give house patients and out-patients the benefit of hydrotherapeutic treatment, and to advance the knowledge of this important branch of physical therapeutics in this community. The room will be open daily for men from 9 to 12 in the morning, and for women from 2 to 4 in the afternoon.

Out-patient cases can be referred only, not transferred. Physicians and surgeons referring their cases for treatment remain in full charge of them. The relation to the hydrotherapeutic room should be the same as to the drug store; that is to say, cases referred to the hydrotherapeutic room should come with a written prescription stating the kind of treatment needed, the number of treatments to be given, and give the date on which the doctor wishes to see his case again for control. (Printed prescriptions to be filled out.) The carrying out of the treatment, and this only, is left to the operators, who are thoroughly familiar with the technique of hydrotherapeutics.

This organization requires a thorough understanding of the physiology and indications of hydrotherapeutics on the part of the hospital and the Out-Patient Department staff. To accomplish this the hospital has asked Dr. J. H. Pratt and Dr. M. Böhm to act as medical advisers in hydrotherapeutics. Dr. Pratt will give during January and February twice a week, at a time to be determined later, lectures and demonstrations on hydrotherapeutics for the staff of this hospital.

Very respectfully,
(Signed) H. B. Howard, M.D.,
Superintendent of M. G. H.

The principle of such a management is to divide the benefit derived from the acquaintance with hydrotherapy as well as the responsibilities and duties, particularly the instruction given in this department, among several men. We expect from an organization of this kind that it will answer best the purpose towards which we are tending, namely, to spread the knowledge of physical therapeutics as widely as possible among the profession; furthermore to raise their scientific standard, and last, not least, to give to all our patients the benefits derived from physical treatment carried out in a scientific way.

MALIGNANT TUMOR OF THE ESOPHAGUS AND DEMONSTRATION OF THE METHOD OF FEEDING AFTER RESECTION.

BY F. B. HARRINGTON, M.D.

IN November, 1905, a woman forty years of age came to the Massachusetts General Hospital complaining of inability to swallow food. A stricture of the esophagus at its upper end was found which admitted a bougie the size of a lead pencil. The patient swallowed liquids with great difficulty accompanied by frequent regurgitation. The patient was emaciated and weak from insufficient food. The finger in the pharynx disclosed a bulging of the posterior wall on a level with the upper part of the larynx. It was decided to reach the tumor from the outside by an incision on the right along the carotid sheath and between it and the trachea. An incision three inches long was made on the right side down to the bodies of the vertebræ. It was found that the bodies of the vertebræ from the fifth to the seventh were studded with exostoses, some as large as a marble, some smaller. These were removed. A bougie was then easily passed beyond the first point of obstruction caused by these exostoses, which had pressed the esophagus against the larynx and trachea. The bougie, however, was arrested at about the first dorsal vertebra where, through the incision already made, a small tumor about the size of a pecan nut could be felt apparently occupying the lumen of the esophagus. An incision on the left side of the trachea was made, parallel with the first, extending down to the clavicle. The esophagus with the tumor was freed entirely from the surrounding structures, which were not invaded by the growth. About one and a half inches of the esophagus were resected. The upper portion of the tube was closed with chromic catgut. The lower portion was attached to the skin and a good sized rubber tube was inserted six inches into the esophagus, through which she was fed. The patient made a rapid recovery, and from being emaciated rapidly gained strength and flesh.

Dr. Whitney's report of the character of the growth is as follows:

"A new growth involving the whole of the esophagus about 3 cm. in extent causing almost complete constriction and measuring about 1 cm. in its greatest thickness.

"Microscopic examination showed solid masses of flat epithelial cells infiltrating the tissues in all directions. In many of these masses there were imbricated horny whorls. Epithelioma."

The patient fourteen months after operation was shown in good health with no sign of return. She feeds herself by inserting a rubber tube six to eight inches long into the esophagus, through which she injects with a glass syringe a variety of liquids and semi-solid foods. She has no desire to masticate food and has no desire to taste her food. Yet she likes variety. She does not suffer from indigestion, although there is, of course, no "buccal digestion."

A CASE OF INTERSTITIAL PREGNANCY.

BY F. B. HARRINGTON, M.D.

IN this case a six months fetus was found in the general cavity of the abdomen, the placenta being adherent to coils of small intestine. There had been no hemorrhage, but the uterus was spread open so that the walls could not be distinguished, except at the internal os where the cervical canal was found, through which a probe as large as a lead pencil could be passed into the vagina. The placenta was removed with much difficulty. The patient lived three weeks after the operation but died of exhaustion from septic absorption. A small fecal fistula developed on the third day. The abdominal wound was not closed at all. There was no involution of the uterus after the operation.

A CASE OF ECHINOCOCCUS CYST OF LUNG AND ABDOMEN.

BY W. H. SMITH, M.D., AND F. B. HARRINGTON, M.D.

ALEXANDER AUCHALS, twenty-three, single, was born and always lived on his father's farm in Southern Russia. No dogs on the farm.

He speaks no English and his history is obtained through interpreters.

Apparently there is nothing important in family history.

His past history and habits are good.

Some six weeks before entrance to hospital on Dec. 12, 1906, left home and sailed for America. At that time he was perfectly well. The trip took fourteen days. On ninth day out, began to have pain in right side of chest. Has had this pain fairly constantly since. Pain has no relation to deep breathing, cough, position or food. Had no cough, no sputum. Felt mean and seedy. Unable to work, but not sick enough to be in bed. No other symptoms.

Entered hospital Dec. 12, 1906, in the service of Dr. F. C. Shattuck. At that time he was well developed but only fairly nourished. No dyspnea. His whole right chest was flat throughout. The heart was displaced to 1¾ inches outside nipple. The liver dullness was 2 inches below costal margin. The interspaces in the right were noticeably obliterated.

On auscultation, bronchial breathing with a suggestion of amphoric, with bronchophony was heard over right chest. The abdomen was flat, held rigidly, and no masses were felt. Otherwise examination not remarkable. Temperature 99°, pulse 120, respiration 32. White count was 18,000. Urine, negative. The chest was prepared and he was tapped just below angle of scapula. Just before tapping it was observed that heavy percussion brought out flat tympany.

On tapping, needle point moved perfectly free, but nothing obtained even with suction.

He was again tapped in posterior axillary line where there was absolute flatness, where thin turbid greenish fluid was obtained, but did not flow at all readily. A little over a pint was withdrawn. Sp. gravity, 1021. Albumin = 0.3%. No bacteria in sediment which was composed of pus cells. At that time no hooklets were found, but subsequently, after protracted search, they were demonstrated. Culture from this fluid showed only a few colon-like bacilli.

Examination after tapping revealed tympany above spine of scapula behind and clavicle in front. Amphoric breathing most marked at angle of scapula behind. Amphoric whisper, coin sound and succussion all present.

This area of tympany varied markedly from day to day. It rarely followed laws of gravity, but was most constantly present in upper axilla.

The man was tapped twice more in post-axillary line and about a pint of similar fluid withdrawn with some trouble each time.

The man was not doing well, losing ground though comfortable. Some little pain in side, having remissions of temperature from normal to 101°, and surgical interference was advised. He was transferred one week after entrance on Dec. 19.

OPERATION.

A portion of the eighth rib was removed and the pleural cavity opened. There was a flow of several pints of fluid containing cysts in large numbers. A short time afterwards cysts were found filling the pelvis and pressing upon the bladder. It is proposed to remove these as soon as the patient's condition will permit.

Reports of Societies.

SECTION ON GENERAL MEDICINE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, Monday Evening, Jan. 14, 1907, at 8.15. Dr. William E. Hughes in the Chair.

CHRONIC INTESTINAL AUTO-INTOXICATION.

Dr. F. Forchheimer, of Cincinnati, in presenting this paper, said that intestinal auto-intoxication might be defined as that condition in which toxins formed in the intestines are absorbed by the organism in which they are produced. The use of this term, he said, had been objected to and that of enterotoxismos or intestinal toxemia substituted. Strictly speaking, only that process should be called auto-intoxication which is caused by the toxic bodies resulting from metabolism and not due to any exogenous cause, such as bacterial activity. Attention was called to an analysis of 77 cases examined by the ordinary clinical methods, in which intestinal auto-intoxication was believed to be present.

Children were excluded because the clinical picture in them differs very much from that in the adult. In concluding the paper Dr. Forchheimer said that if the endeavor were made to get a composite picture from what had been said, in order that the diagnosis of chronic interstitial auto-intoxication might be made, the following would have to be taken into consideration:

(1) In the gastro-intestinal tract there are Riggs' disease, various forms of stomach troubles, change in functional activity of the colon and demonstrable retention of feces due to one cause or another.

(2) In a large percentage of the cases indican is increased in the urine and a microscope shows, in a large percentage of cases, calcium oxalate (50%), uric acid and urates (25%), red corpuscles (about 30%); in 28 cases about 33⅓%; the alternation of polyuria with oliguria was noted.

(3) Half of the female had menstrual trouble.

(4) Next to Riggs' disease, nervous symptoms were present in the largest number of patients. Of these 31 cases of the 77 had headaches.

(5) In a large number (58 out of 77) cardiovascular changes were observed; over one half were due to neuroses and to myocardial conditions.

(6) Of the 77, 50 cases had locomotor symptoms, gouty joints, but especially muscular symptoms.

(7) Twenty-two patients had skin lesions. From the combination made by various symptoms, the diagnosis of chronic intestinal auto-intoxication should be easily made, and, as a matter of fact, this is the case in practice, as is shown when this diagnosis is followed by the logical therapeutic measure.

The great difficulty is pointed out of determining the importance of the intoxication in an individual case, — whether it produces all the symptoms, whether it is the cause or the result of other conditions, whether it is the product or the predisposing cause. The greatest caution should be taken before chronic intestinal auto-intoxication should be looked upon as the final diagnosis. In the selected cases this diagnosis was made only ten times. In all the other cases the auto-intoxication was looked upon simply as a contributory cause, present and requiring treatment, but not the principal disease.

Dr. Hobart A. Hare, in opening the discussion, said that in the condition of auto-intoxication in a large percentage of cases the effects of the toxic materials are exercised upon the nervous system, upon the muscles and joints, thus producing widely varying symptoms. Illustrative cases were cited. Certain articles of food were said to produce toxicity and a case was related in which eggs some time after being eaten caused this effect. In some instances the chewing of a rubber band or chewing gum with the expectoration of the saliva aids in the elimination of the toxicity. One class of cases cited was that presenting a particular type of dull, constant headache for days or weeks, unrelieved by the ordinary methods, nearly always associated with the presence of excessive phosphates in the urine, the urine being alkaline. Another class of cases was unaccompanied by pain, but associated with profound melancholia and depression.

An important point in his opinion is that of the activity of the kidneys in regard to the elimination of poison. He emphasized the need of renal purges instead of simply purges by the bowel. The necessity was pointed out of studying the condition of the bowels in relation to enteroptosis, believing that most of the poisons absorbed under these circumstances are from the intestine and not from the stomach, and that good results cannot be secured until the enteroptosis is corrected. The two types of auto-intoxication, (1) that due to intestinal absorption, (2) that due to faulty metabolism, were referred to. These were frequently confused and should be separated. The intestinal cases can be relieved to some extent by renal and intestinal purge and some drugs, while the second is not usually benefited to any great extent by these methods.

Dr. David L. Edsall, continuing the discussion, said that he had found from his investigations that the total of ethereal sulphate may be increased in the urine and yet indican or phenol, one or the other, occasionally both, may not be definitely increased, and that phenol is more irregular than either of the others. He believes that the increase of phenol is a comparatively uncommon thing and of some special significance. The examination of the urine, however, in this relation he regards as absolutely valueless unless it is carried out repeatedly. The examination of the urine as an index to the existence of putrefactive processes, while in a large proportion of cases useful, in a large number of cases also is misleading. He believes, therefore, that from the examination of the urine alone the conclusion is not warranted as to whether abnormalities in the urine are the consequences of changes in the intestinal tract or the result of abnormalities in the liver, excretory or various other organs in metabolism. His feeling is that the diagnosis of gastro-intestinal auto-intoxication is a diagnosis that ought to be applied to cases in which there is found other and distinctive evidence by more perfect methods of disorder of the gastro-intestinal tract.

Dr. Joseph Sailer said that the subject of gastro-intestinal auto-intoxication had been to him a very hazy one. The chief difficulty in its study, he thought, was that the work had been based largely upon certain symptoms which were by no means pathognomonic of the condition. He attached much importance to the study of the activity of the ferments in the gastric juice and believes that there are unquestionably a great variety of conditions, both natural and artificial,

which have the capacity of inhibiting ferment activity in the stomach and also a great variety of artificial conditions which have the capacity of limiting the ferment activity in the intestines. Mention was made of cases studied with reference to the acid content and clinical symptoms. Various cases of migraine, he said could be brought on by certain food, relieved as soon as the diet was corrected. An interesting group was that in which the symptoms were referable to the peripheral nerves, only relieved by lavage of the stomach, purgation and other treatment applied usually to the gastro-intestinal tract. Reference was made to the use of the commercial preparations of trypsin.

DR. J. DUTTON STEELE continued the discussion, speaking of the significance of the fecal findings in intestinal auto-intoxication.

DR. FORCHHEIMER, in closing, said that the object of the paper was to present a clinical picture of the whole condition and not to present the presence of indican as a specific symptom in any way. He agreed with Dr. Edsall that examinations of the urine to be of value must be made repeatedly. If this were done and indican found in every specimen, its presence was probably indicative of something abnormal. He has experimented largely in a clinical way with intestinal antisepsis and believes a good mode of administration is in the salol shellac-coated pill. One of the best antiseptics he believes to be betanapthol. Next to this is menthol. Following this his choice is for permanganate of potassium. Calomel, of course, acts as an antiseptic, but he regards castor oil as the best of all intestinal antiseptics, and if given freely will produce as nearly as is possible asepsis of the intestines.

Book Reviews.

Golden Rules of Surgery. Aphorisms, Observations and Reflections on the Science and Art of Surgery. Being a Guide for Surgeons and those who would become Surgeons. By AUGUSTUS CHARLES BERNAYS, A.M., M.D. (Hdlbg.), M.R.C.S. (Eng.); Life Member of the German Society for Surgery of Berlin; Chief Surgeon, Lutheran Hospital, and for twenty years Professor of Anatomy and Surgery in St. Louis, Mo., U. S. A., etc. St. Louis: The C. V. Mosby Medical Book Co. 1906.

This is an interesting little book which considers the following subjects in chapters: The Education of a Surgeon; On Scientific Contributions to the Literature of Medicine and Surgery; Science and Surgery; On Ways and Means of Building up a Practice; About Fees; Off with the Cloak of Superstition; Some Golden Rules of Surgery; Away with Inflammation and the Confusion it has Caused; Reminiscences.

The writer states that in this little volume will be found "philosophical *causeries*." This method of educating young men has a very definite value, and often these brief statements are farther reaching than the author intends. It is rather strange to see a man who is strongly of the opinion that the student should be kept on the scientific track advocating so many diagnostic tips. But, after all, there are many ways of approaching a subject, and "all roads lead to Rome."

Some of the rules that are given are taken from "The Golden Rules of Surgery" by Harry Fenwick, and are admirable. No one will be harmed by reading this book; many will receive information; how much of this information will stick is the question.

Heath's Manual of Minor Surgery and Bandaging. For the use of House-Surgeons, Dressers and Junior Practitioners. Thirteenth edition. Revised by BILTON POLLARD, F.R.C.S., Surgeon to University College Hospital and Teacher of Operative Surgery in University College, etc. Philadelphia: P. Blakiston's Son & Co. 1906.

It is a pleasure to again see this old, familiar manual of minor surgery and bandaging appear, revised by Mr. Bilton Pollard. Dr. Dudley Buxton has revised the chapter on anesthetics. It is a difficult thing at best to revise satisfactorily an old book, but Mr. Pollard has succeeded in doing so in an admirable manner.

The book has such a well-established reputation that it will undoubtedly still maintain its position as a guide to house surgeons, dressers and junior practitioners. The cuts are very familiar and express, perhaps, as well as may be the object they were intended to.

We wish that the book had been made more modern, but undoubtedly much of the personal side of Mr. Heath would have been lost had the text been materially altered.

Handbook for Attendants on the Insane. With an appendix giving the regulations for the training and examination of candidates for the certificate of proficiency in nursing of the Medico-Psychological Association of Great Britain and Ireland. Fourth edition. Reprinted with revised regulations. Twenty-fifth thousand. Published by authority of the Medico-Psychological Association. London: Bailliere, Tindall and Cox. Chicago: W. T. Keener & Co. 1906.

This handbook for nurses to the insane in hospitals as newly revised by the committee of the Medico-Psychological Association of Great Britain and Ireland is, as we have had occasion to say of its previous editions, a very satisfactory book for the purpose. It is for nurses and nurses only, and much judicious advice plainly put is compressed into its small compass; in fact, it is so sound that we wish there were more of it and, although the main points are well covered, there is room for further information on the management of the insane without exhausting the subject or encroaching on purely medical questions. The work, too, would then be better balanced than at present, as two thirds of its one hundred and fifty-one pages are now devoted to general nursing.

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THE RECOGNITION OF TUBERCULOSIS AS AN INDUSTRIAL FACTOR.

A number of years ago the German insurance companies recognized the fact that to provide a place for the treatment of the tuberculous was economically preferable to paying disability and death losses. They recognized that the results of the scientific treatment of tuberculosis paid, and they built extensive sanatoria. In America, for the greater part, the problem of the management of the tuberculous sick has been financed on the basis of philanthropy rather than of economy. Such motives are not to be criticised, and yet the addition to them of the incentive of economy would strengthen the appeal to the average citizen.

Recently there has been organized in two New England towns, Providence and Brockton, a move to reach the tuberculous factory operatives. The business men at the head of great factories have recognized the industrial importance of tuberculosis as a deteriorating factor in their employees and have organized an attack on the disease along the lines of home treatment and education to minimize the dangers of contact. That education has been almost as necessary to some of the physicians is a regrettable truth, but it is by no means an unimportant phase of the work.

Whether we agree with the extremists, who claim that the best results can be attained only in ideal climates, or with those who say that climate is of no importance, the facts remain that many are so situated that treatment except in the local climate and at home is impossible, and that under these conditions, with proper supervision and instruction, patients with tuberculosis are greatly benefited and often the disease arrested. Taken early and so treated, the laboring man can be returned fit for work, and instructed so as no longer to be a danger to his associates. It would seem that this occurs in a large enough percentage of cases to make the treatment economically worth while.

In Providence the fight against tuberculosis among factory operatives has already been well organized, largely under the direction of Dr. F. T. Fulton. The business men and factory owners are interested in the work. It is not merely a medical organization. In fact, Dr. Fulton has been made a member of the board of trade in order to better act with the business men. There in a number of factories the following notice has been conspicuously posted:

"There is at present a strong effort being made to exterminate the disease, consumption. It is known to be very easily curable if the treatment is begun in the early stages, and readily prevented by proper ways of living. The hopeless or incurable cases are those that have been allowed to go neglected. In order to aid in this matter, we have provided, free of expense to our employees, a physician who is especially interested in this disease, and who can advise about the best treatment; and for the purpose of helping those who may be afflicted and protecting others, we shall feel free to suggest an examination of any who may possibly have symptoms of this disease as indicated by coughing, loss of weight or appetite. If the lungs are found to be healthy, there is then no need to worry; if, on the other hand, there is any disease, it can be treated before it is too late to go ahead."

But it is especially through the co-operation of the foremen that the operatives are reached. The foreman advises the man who coughs to see the physician appointed for this purpose, and in this way every effort is made to detect the cases early and institute home or sanitarium treatment at a time when these measures may succeed and return to the shop a workman fit for work, a trained man in his old place instead of a green one to be taught.

In Brockton a somewhat similar work has been instituted in the Douglas factories, financially supported by ex-Governor Douglas and under the medical direction of Dr. Ripley. This work has been organized but very recently, but bids fair to succeed and be extended to other factories in the same town.

This organization of the tuberculosis fight in two towns marks an important advance. Devel-

oped and extended, it may prove a great aid in the struggle for the suppression of the great white plague. On an economic basis, an appeal for aid can be made to every employer. As Dr. Fulton said to a meeting of Providence business men: "You men who employ large numbers of persons control the situation. Many of them are without advice and without treatment. They are a direct menace to your health, to the health of your families and to your other employees. So, from a selfish point of view, you should become interested in helping in this important matter." It is to be hoped that even this selfish point of view, though it has not been the chief motive actuating those who have already supported the work, may serve to widely extend the recognition of tuberculosis as an industrial factor and stimulate similar moves in many other factory towns.

CEREBRAL LOCALIZATION.

THE recent work of Dr. Campbell, published under the auspices of the Royal Society,[1] must be regarded as one of the important contributions to the study of cerebral localization. He claims to have explored the whole surface of the cerebral cortex in a comprehensive and complete manner, and a study of his observations and the amount of material which he has investigated will show the extraordinary magnitude of the work which he has done. He has examined no less than three human cerebral hemispheres completely for both nerve cells and nerve fibres, three hemispheres completely for fibres only, and two partially for nerve cells and nerve fibres, and, in addition, a large amount of pathological material consisting of two brains from cases of amyotrophic lateral sclerosis, seven brains from cases of amputation of an extremity, three brains from cases of tabes, one brain from a case of old capsular lesion, and two from cases of long-standing blindness. In addition he has examined the cerebral hemisphere of two chimpanzees and an orang and studied the cortex of the dog, the cat and the pig.

As a result of this exhaustive study, Dr. Campbell has described in detail the cell lamination and the fibre arrangement of all parts of the cortex, has discussed the functions of the parts examined based on the histological characteristics of the cortex, the results of experimental investigation, clinico-pathological data, the teaching of comparative anatomy and developmental evidence.

[1] A. W. Campbell. Histological Studies on the Localization of Cerebral Function.

As a result of this study, he concludes, and proves by the representations which he gives in the work, that there is a definite cell lamination and a definite fibre arrangement for different areas of the cortex which are characteristic of that particular area. He agrees with Sherrington and Grünbaum that the motor area is practically confined to the ascending frontal convolution, and both in the anthropoid apes and in man he has mapped out a histological area corresponding to the distribution of the cells of Betz which agrees very closely with that which responds to electrical irritation. The floor of the fissure of Rolando forms the constant posterior limit to this area. In amyotrophic lateral sclerosis he has found an almost total disappearance of the Betz cells of this area, but in the posterior central convolution there were no changes. In the posterior convolution, on the other hand, he finds an absolutely different anatomical arrangement, a complete absence of the cells of Betz, and he believes that this is the area for tactile sensibility. In tabes, furthermore, he has found that the characteristic pyramidal cells of this convolution are atrophied.

In the calcarine region he has also found a characteristic anatomical arrangement, bordering upon the calcarine fissure, which, in his opinion, determines the visuo-sensory area. In the temporal lobe within the fissure of Sylvius and appearing little, if at all, on the external surface, is an area which he believes to be a special auditory centre. Adjacent to the visual area is another area distinct in anatomical arrangement, which he regards as a visual psychical area. In the occipital lobe there are these two distinct cortical centers, each of a special anatomical type, one specialized for the primary reception of visual sensation, the other constituted for the final elaboration and interpretation of these sensations, and this arrangement, with the psychical center contiguous to the primary motor or sensory area, he believes to exist in the different parts of the cortex which form the terminal areas of the projection system. The parietal area he believes has the function of elaborating the complex impressions embodied in the muscular and stereognostic senses. The Island of Reil is probably old in the rank of phylogenesis and has nothing to do with the function of speech. It is possibly the centre for taste. The prefrontal cortex shows an exceedingly low structural development, an extreme of fibre poverty, and its association system is particularly deficient. It is probably the last portion of the frontal lobe to develop, and its

physiological importance as a psychical center is overestimated, but this does not apply to the frontal area immediately posterior to it.

As we have said, this contribution of Campbell is the most important for the study of cerebral localization that has appeared for a number of years and is one which demands serious and careful study by every investigator.

ANNUAL REPORT OF THE CRAIG COLONY FOR EPILEPTICS.

We look each year to the report of the Craig Colony, as to the report of the Hospital for Epileptics at Munson and other institutions where large bodies of epileptics are gathered, for signs of progress in the care and treatment of epilepsy. There is no doubt that the experience derived from the careful and judicial study of large numbers of patients suffering from the same disease is of the greatest possible value in determining many practical points. The large number of persons under treatment at the Craig Colony, upwards of a thousand, offers a unique opportunity for observation, and since systematic reports of results have been published, we have certainly come to look upon the disease as less hopeless and distressing than was formerly the case.

During the year under consideration the cost of maintenance was the lowest in the history of the colony, being $141.38 for each patient. It has been felt that separate provision should be made for low grade cases in order that the colony proper may be devoted more especially to those who are, at least in a measure, capable of caring for themselves. Could the colony be relieved of approximately three hundred and fifty of these low-grade cases, a valuable addition to the available space for less seriously affected persons would be provided. Dr. Spratling, who is somewhat optimistic regarding the treatment of epilepsy, makes many interesting statements in his report. There are one thousand applicants on the waiting list in New York state alone, but presumably epilepsy is not increasing, although the somewhat startling announcement is made that there is probably one epileptic to about every three hundred of the population at large. An exact census is naturally a matter of extreme difficulty, owing to the fact that the disease may appear in very inconspicuous form at night or the attacks may recur only at long intervals. Dr. Spratling makes the definite statement that epilepsy is a curable disease and that he has seen scores of cases cured during the past twenty years. Without question Dr. Spratling's dictum in the matter will be treated with great respect, but it is hardly to be questioned that so dogmatic a statement will pass unchallenged. It is at least well to define exactly what is meant by cure in an affection of this sort. Earlier admissions to properly equipped hospitals are regarded as desirable if cures are to be effected. At the Craig Colony about 5% of the possible curable cases are cured, but it takes years to accomplish this result.

Since the last report the research laboratory has undergone a change of directors. Dr. J. F. Munson, formerly of the University of Michigan, has been appointed pathologist during the year to take the place of Dr. Onuf, who previously had held the position. Dr. Munson's report is naturally a preliminary statement of what he proposes and hopes to do toward the investigation of the causes of epilepsy from a pathological standpoint. Stated briefly, the line of work which has been mapped out is, first, the study of the chemical structure of the normal and of the epileptic nerve cell, and, secondly, the study of the tissues and fluids of epileptics to find if there is an outside agent, and then, if possible, to isolate it and discover an antidote. The subject is a difficult one to attack, and it is to be hoped that Dr. Munson may be able not only to initiate a line of research, but also to carry it to some definite conclusion in his present position.

A CARCINOMA PARASITE.

In commenting on the recent work of the New York State Cancer Laboratory at Buffalo, as reported by Dr. Gaylord, its pathologist, at the one hundred and first annual meeting of the State Medical Society, Prof. Gary N. Calkins, of the department of zoölogy, Columbia University, who is himself the biologist of the laboratory, has made a statement which is of special interest as coming from a source of such acknowledged authority in biological research. All attempts to demonstrate the existence of a parasite in either mouse carcinoma or the rat carcinoma which has been successfully transplanted for years in the Buffalo laboratory, he says, had proved futile until June, 1906, when an important discovery was made which renders it probable that a specific parasite accompanies carcinoma in mice. By the use of Levaditi's method for demonstrating the specific organism of syphilis, it was found that peculiar spirally wound

organisms, belonging to the genus Spirochete, were present within and around every mouse tumor examined. These spirochetes were present in a young, rapidly growing, non-ulcerated primary tumor in a mouse obtained from Massachusetts and in every strain of transplanted tumors in the Buffalo laboratory. This discovery, Professor Calkins goes on to say, would appear to be of the utmost importance in the future study of the cause, development and possible cure of cancer. It would be premature to declare that these organisms are the cause of mice carcinoma; but their presence in and around the cancer cells and their absence elsewhere is a sufficient justification for continuing research and experimentation along the line of the parasitic hypothesis of human cancer. Of the twenty known species of Spirochete, five are admittedly pathogenic, the organisms of syphilis, relapsing fever, African tick fever, and of special forms of disease in chickens and in ducks. While all these spirochetes are on the very border line between the animal and vegetable kingdoms, their animal relatives being protozoa, such as Trypanosomata, and their plant relatives the spiral bacteria, the preponderance of evidence is in favor of the animal origin of the organisms. During the past ten years many supposed cancer germs have been discovered and described, but they have all turned out to be false leads; it having been demonstrated in every instance that the so-called germ was not a true organism. But there is no question, according to Prof. Calkins, as to the organic nature of the spirochete found in the Buffalo laboratory. All who have seen it agree that it is a true organism; and if it is ultimately found in all cancers, the conclusion will be that this organism is the cause of the disease.

MEDICAL NOTES.

INTERNATIONAL CONGRESS ON SCHOOL HYGIENE. — It is announced that the Second International Congress on School Hygiene will be held from Aug. 5 to Aug. 10 at the University of London, under the presidency of Sir Lauder Brunton. The work of the congress is to be divided into eleven sections.

BEQUESTS TO UNIVERSITY OF OXFORD. — It is announced, according to *Science*, that the late Dr. Gustave Schorstein bequeathed £500 to the regius professor of medicine at the University of Oxford for the pathological department of the medical school and a sum which will amount to some £10,000 in trust to the University of Oxford, subject to certain life interests.

REPORT OF ROYAL COMMISSION ON TUBERCULOSIS. — As a result of a long series of experiments in relation to human and bovine tuberculosis, which Koch asserted in 1900 were distinct diseases, the British Royal Commission concludes that man is liable to bovine tuberculosis and that milk may carry bacilli capable of producing the infection. The commission therefore disagrees with Koch, and maintains that his results were based upon misinterpreted and insufficient observation.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Feb. 6, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 53, scarlatina 76, typhoid fever 5, measles 18, tuberculosis 31, smallpox 0.

The death-rate of the reported deaths for the week ending Feb. 6, 1907, was 20.69.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, Feb. 2, 1907, was 261, against 233 the corresponding week of last year, showing an increase of 28 deaths and making the death-rate for the week 22.60. Of this number 126 were males and 135 were females; 252 were white and 9 colored; 154 were born in the United States, 103 in foreign countries and 4 unknown; 57 were of American parentage, 168 of foreign parentage and 36 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 52 cases and 4 deaths; scarlatina, 70 cases and 1 death; typhoid fever, 4 cases and 0 deaths; measles, 22 cases and 0 deaths; tuberculosis, 38 cases and 27 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 43, whooping cough 2, heart disease 38, bronchitis 7 and marasmus 3. There were 8 deaths from violent causes. The number of children who died under one year was 44; the number under five years 56. The number of persons who died over sixty years of age was 79. The deaths in public institutions were 77.

There were 6 cases and 3 deaths reported from cerebrospinal meningitis during the week.

A CASE OF LEPROSY. — A case of leprosy has recently been discovered in Somerville, Mass., in the person of a man of twenty-four, a native

of Trinidad, who came to New York in 1904. He has been removed to Gallup's Island, Boston Harbor, for observation and treatment.

Maine Academy of Medicine and Science. — In view of the fact that there is a bill, introduced by the State Bar Association, now pending in the Maine Legislature, relative to medical expert testimony in criminal cases, the Academy have voted to devote to medico-legal subjects the next regular meeting called Feb. 13. Mr. Clark Bell, of New York, has accepted an invitation to address the meeting.

NEW YORK.

Annual Meeting of Stony Wold Sanitarium. — The annual meeting of the Stony Wold Sanitarium, in the Adirondacks, for tuberculous women and girls, was held on Jan. 23, and addresses were made by the Hon. Joseph H. Choate, Dr. Livingston Farrand, Dr. James E. Newcomb, and others. The report showed that during 1906 193 patients were treated and that 80 of these remained at the close of the year. There is a debt on the institution of $61,000, and it was announced that Messrs. John D. Rockefeller and Anson R. Flower had each agreed to contribute $12,500 toward its payment, provided the remaining $36,000 were raised by the managers. The sanitarium now has $26,000 as a nucleus for a permanent endowment fund.

Letchworth Park Gift Act. — The legislature has passed, and Governor Hughes has signed, as his first bill, the Letchworth Park Gift Act, which provides for the acceptance of a deed of gift made by William Pryor Letchworth to the people of the state of New York, conveying lands of about one thousand acres in extent, situated in the town of Genesee Falls, Wyoming County, and the town of Portage, Livingston County. This tract is stated to contain even more beautiful scenery than that of the Watkins Glen Park, which the state acquired some time ago by purchase, and its custody, by the terms of the bill, is to be in the hands of the American Scenic and Historic Preservation Society.

Death of a Patient with Acromegaly. — An interesting case of acromegaly has just terminated fatally at Bellevue Hospital, where the patient, a man thirty-three years of age, had been under observation for four years. The abnormal growth was not confined to the head, hands and feet, as is commonly the case in this disease but the bones of the thorax and pelvis also became enormously enlarged; the autopsy was attended by a large number of physicians.

Gift to Mount Sinai Hospital. — By the will of the late Henry Meinhard, of New York, $5,000 is left in trust to be divided equally between the Mount Sinai Hospital and two other charitable institutions.

Enlargement of Sanitary Code. — At a meeting of the city Board of Health, held Jan. 30, two important sections were added to the Sanitary Code. The first of these prohibits the sale at retail of cocaine or any cocaine salt, either alone or in combination with other substances, except upon the prescription of a physician. The other prescribes that it shall be the duty of all persons having in their possession bottles, cans, or other receptacles used in the transportation and delivery of milk or cream, to clean or cause them to be cleaned immediately upon emptying; and that no person shall use or cause to be used any such receptacles for any purpose whatsoever other than the holding of milk or cream, or receive or have in his possession any such receptacle so used which is unclean or in which milk or cream has been allowed to stand until offensive. Persons violating these ordinances are liable for misdemeanor.

Dispensary for Treatment of Tuberculosis. — It is announced that the Health Department, which for some time past has maintained tuberculosis clinics in Manhattan and Brooklyn, is about to open a dispensary for the free treatment of tuberculous patients in the Borough of the Bronx. It is to be located in the Department's building at Third Avenue and St. Paul's Place.

Physical Welfare of School Children. — At a meeting of the Committee on Physical Welfare of School Children of the Board of Education, held January 30, it was announced that the first attempt in America to provide dental treatment for the pupils of the public schools was about to be made, Dr. H. L. Wheeler stating that for this work he had organized a corps of twenty dentists, all of whom had promised their services gratuitously. At this meeting Mr. Burlingham, chairman of the committee, presented a statistical study of the home conditions of six thousand children found by school physicians, teachers and nurses to be in serious need of dental, ocular or medical treatment or of better nourishment or fresh-air outings.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JAN. 19, 1907.

1. *ROTCH, T. M., and Low, H. C., *Some Blood Cultures in Children and Their Significance.*
2. *MILLS, W. *A Physician's Creed, Past and Present, as to the Physiology of the Heart.*
3. SOLIS-COHEN, S. *The Limit of Proprietorship in Materia Medica.*
4. BRYANT, W. S. *Results of Improved Technic in Otologic Surgery.*
5. *HOLDEN, W. G. *Duties of Municipality and State in the Control of Tuberculosis.*
6. HAYNES, J. R. *Duty of Railroads in Transportation of Tuberculous Passengers.*
7. WHEATON, C. L. *The Value of the Sanatorium in the Crusade against Tuberculosis.*
8. *KNOPF, S. A. *Aerotherapy and Solar Therapy in the Home Treatment of Tuberculosis.*
9. WOLDERT, A. *Résumé of the Complete Gastric Analyses in 61 Cases of Indigestion.*

1. Rotch and Low recommend the resort to blood cultures in children when other means fail to make plain the diagnosis. In certain cases blood culture reveals directly the cause of the disease. The procedure is more practicable in children than has been supposed. In the first four years of life it was possible in 21% of cases, in the second four years in 72% and in the third four years in 86%. The blood is drawn from a vein in the arm with a glass antitoxin syringe and directly inoculated into the culture medium. Thirty-six cases were tested, 15 of which gave a growth. A negative result the authors believe to be of value in prognosis. In diagnosis the procedure is of greatest value in typhoid and in "cryptogenetic septicemias."

2. Mills reviews the history of theories held as to the origin of the heart beat. These theories are three in number. First, it was believed that the stimulus to contraction came through nerves — the neurogenic theory. Next it was suggested that the muscle fibers themselves had the power to produce and to transmit the stimulus — the myogenic theory. Most recently it has been maintained that the stimulus is chemical, depending upon salts in the blood — the ionic theory. Evidence is still accumulating in support of each of these theories. Mills believes that all three factors — chemical, muscular and nervous — enter into the production of the heart beat. The nutrition of the heart, however, he believes to be dependent upon the nervous system.

5. For prevention of the spread of tuberculosis Holden advocates the following measures: compulsory registration of tuberculous patients; compulsory isolation of patients who do not observe proper precautions; abolition of dry street sweeping and enforcement of anti-spitting laws; sanitary control of tenement houses, public conveyances and schools; inspection of dairies and herds, and, lastly, a more general establishment of sanatoria.

8. Knopf describes a window tent for the fresh-air treatment of the patients with tuberculosis, which is practically an awning put up inside of the window, instead of out of doors, to cover the patient's bed. By lowering in or raising the window sash, sufficient air space can be left to ventilate the room also, without interfering with the open-air treatment, the air of the room not being allowed to mix with the air breathed by the patient. A transparent pane is made in the tent so as to enable the patient to be observed, without disturbing the arrangement. Knopf describes the advantages of the contrivance at length, its inconspicuousness, the shelter from room draughts, the prevention of drop infection by coughing and chiefly its comparative inexpensiveness. The contrivance, though now obtainable from the manufacturers, the Kny-Scheerer Company, is not patented, and a similar arrangement can be improvised if necessary. In conclusion, he refers to the value of carefully conducted respiratory exercise and of solar therapy, in the treatment of consumptives.

SURGERY, GYNECOLOGY AND OBSTETRICS.

JANUARY, 1907.

1. *WERTHEIM, E. *The Radical Abdominal Operation in Carcinoma of the Cervix Uteri.*
2. LUTZ, F. J. *Excision of Scapula for Malignant Growth.*
3. CONNELL, F. G. *Sarcoma of the Male Breast: Report of a Case.*
4. *KÜMMELL, H. *Modern Surgery of the Kidney.*
5. *DIXON, A. *Suprapubic Cystotomy with Retrograde Catheterization in Traumatic Rupture of the Urethra.*
6. *RYDER, G. H. *Temperatures Occurring during the Puerperium.*
7. *TAIT, D. *The Control or Elimination of Pneumothorax in Pleuropulmonary Interventions.*
8. *BLAIR, V. P. *Operations on the Jaw-Bone and Face.*
9. PARKER, C. A. *Fractures.*

1. Wertheim describes the removal of the uterus with cancerous cervix in its succeeding steps as performed by him, each step being well illustrated. The vaginal extirpation of other operators has not yielded such a favorable series of remote results as has this abdominal one, for two reasons; firstly, involved glands along the course of the great vessels can be better reached by the abdominal route, and secondly, because more of the primary focus and parametrial tissues are accessible for removal. The greatest care is taken to outline the ureters, which must not be wholly elevated from their bed, for this cuts off their blood supply. Involved glands are sought as high as the bifurcation of the aorta, as well as in the pelvic cellular tissue. The operation takes place outside the peritoneum which is again sutured after the uterus has been removed, a drain being left in the vagina.

4. Surgery of the kidney depends for its success on the x-ray tube, the cystoscope, the ureteral catheter and on the method of functional examination, notably, cryoscopy. After brief remarks on the first three of these factors Kümmell describes at length his very extensive experience with cryoscopy and concludes as follows: (1) If the kidneys are intact, the molecular concentration of the blood is constant, and, on the average, corresponds to a freezing point of 0.56°. This statement is based on the results of about seven hundred examinations. In weakened and anemic individuals, figures of 0.55°, or even 0.53° and 0.52°, were sometimes observed. (2) Unilateral kidney disease causes no change in the freezing point of the blood. (3) The normal freezing point, 0.56°, proves only that so much functionating kidney tissue is present as is necessary to excrete completely the products of tissue metabolism. Theoretically it might be assumed that the division of work of the kidneys is such that each takes an approximately equal part in the excretion of these products of metabolism. Under such circumstances loss by operation of one working half might be expected to be followed by an insufficiency on the part of the remaining half. The presence of a second kidney must, therefore, always be proved by ureteral catheterization before any operative intervention. The urea and freezing point of the urine from each kidney is then determined ,thus giving data on which may be based the nature of the subsequent operation. A lowering of the freezing point of the blood indicates that the kidneys are not entirely equal to the required work, and if this falls to 0.60°, according to the experience of the writer, nephrectomy must not be attempted, nor nephrotomy unless absolutely necessary. Before the use of these modern methods the author reports 41 nephrectomies with a mortality of 36.5%, while since the introduction of ureteral catheterization and cryoscopy he is able to report 148 nephrectomies with a mortality of only 6.7%.

5. Dixon reports four cases of traumatic rupture of the urethra treated by him, with excellent results in all. He calls attention to the importance of this condition to the general practitioner, and to the lack of adequate consideration of it by most of the best-known textbooks. After incising the perineum and passing a catheter down to the seat of rupture, a small opening is made above the pubes through which, guided by the finger, a sound may be made to meet the tip of the catheter from behind forwards. By this method the torn and retracted end of the proximal fragment of urethra is brought to view without delay. The catheter can then be continued

through it, up to, or into the bladder as the operator wishes.

6. Fever during the puerperium is discussed by Ryder under the following varieties: (1) Reactionary temperature. (2) Temperature from distended breasts. (3) Temperature due to mastitis. (4) Temperature due to to pyelitis. (5) Temperature due to puerperal toxemia. (6) Temperature due to bacteriemia. These are fully discussed with illustrative charts. The following good advice concludes the article: No effort should be spared to find and remove the cause of any temperature occurring during the puerperium. Begin with the breasts and uterus. Palpate the breasts for distention, lumps and localized tenderness, and start treatment at once if indicated. Palpate the uterus through the abdomen and notice especially tenderness and height of fundus. Palpate over the tubes for tenderness. Examine the lochia. Inspect and smell the pads. Look at the vulva, the perineum and the vaginal wall. Notice the cervix. Make a careful bimanual examination. Then make a careful examination of the ears, throat, heart and lungs. Examine the urine and sometimes the blood. In obstetrics hemorrhages can be stopped, lacerations may be sewn up, but sepsis must be prevented.

7. The various appliances for producing both positive and negative pressure about the thorax are pictured and described by Tait. His investigation has led him to the following opinion: (1) Surgery of the lung is only partly governed by the laws of general surgery; and although the pleura resembles the peritoneum in its marked susceptibility to infection, the advent of asepsis has not perceptibly enlarged the field of thoracic surgery. (2) Acute pneumothorax is less dangerous and more amenable to treatment than is commonly believed, but in its control we may find the key to the much needed *scientific exploration* and safe treatment of numerous intrathoracic lesions. (3) Experience alone will tell the value of the addition of physiological methods to the technic of intrathoracic surgery and decide the choice between the simple, the positive, and the complicated, the negative pressure apparatus.

8. Blair discusses *in extenso* the etiology and pathological anatomy of developmental malformations of the jaws, both to each other and to the facial outline, and their operative treatment when beyond the scope of the orthodontist. The lower jaw furnishes the usual site of operative attack, which is by sections or resections with various prosthetic measures. The article is well illustrated.

The Lancet.
Jan. 12, 1907.

1. *Ettles, W. J. McG. *The Pathology and Treatment of the Ocular Complications of Gonorrheal Infection.*
2. Ruffer, M. A., and Crendiropoulo, M. *On Substances Favouring and Inhibiting the Action of Bile and Serum.*
3. Russell, W. *Three Stomach Cases from the Physician's Standpoint.*
4. Spencer, D. B., and Staddon, H. E. *A Case of Paratyphoid Fever in Mauritius.*
5. Myers, B. E., and Still, G. F. *On White-Wine Whey in Infant Feeding.*
6. Nixon, J. A. *Sclerodermia and Myositis.*
7. Deanesly, E. *Rupture of the Urethra, Intrapelvic and Perineal.*
8. Lediard, H. A. *Gallstones in the Appendix.*
9. Vaughan, J. C. F. D. *Pneumothorax from Puncture of the Pleura.*
10. Webb, J. C. *A Suggestion for the Treatment of Cases of Chronic Sciatica and Similar Forms of Neuritis.*
11. *Douglas, J. S. C. *A Case of Influenzal Meningitis.*
12. Berry, H. P. *The Persistency of the Infection in Certain Cases of Scarlet Fever.*
13. Vazifdar, N. J. F. *A Case of Dermoid Cyst in the Ramus of the Jaw.*

1. In the treatment of gonorrheal infection of the eye, beside using silver salts, organic and inorganic, Ettles cuts the outer canthus of the eye through the outer tarsal ligament in severe cases. This gives much freer access to the eye, allows better drainage and takes off the cornea the weight of the heavy and edematous lids.

11. Douglas speaks briefly of the previous cases found in the literature where meningitis was due to the influenza bacillus, and reports the case of a child of ten months, who came into St. George's hospital after a vague illness of two days, showing meningeal symptoms. Lumbar puncture gave 5 cc. of fluid containing many short bacilli culturally and microscopically corresponding with the influenza bacillus. The child died five days after entrance. Postmortem examination showed thick, green pus over the surface of the brain and cord. Influenza bacilli were cultivated from this exudate also. There was no pus in the middle ear.

British Medical Journal.
Jan. 12, 1907.

1. Herringham, W. P. *Arterial Sclerosis.*
2. *Wenckebach, K. F. *The Pathology and Treatment of Adherent Pericardium.*
3. *Gulland, G. L. *Anomalous Cases of Pernicious Anemia.*
4. Evans, H. M. *Observations on the Poisoned Spines of the Weever Fish. (Trachinus Draco.)*
5. Christophers, S. R. *Preliminary Note on the Development of Piroplasma Canis in the Tick.*

2. Wenckebach bases his paper on a case of adherent pericardium in a young boy, whom he had under observation for several years. In 1903 there was an exudative pleurisy on the left with pain and fluid, for some weeks. The fluid was finally absorbed but dullness with marked retraction of the lung remained. A year later a pericarditis followed. The liver was large and hard, reaching nearly to the umbilicus and very sensitive to touch. The diagnosis of adherent pericardium was clear. The symptoms where the heart is attached to the pericardium only may be mild; where it is attached to the diaphragm and to the front and back walls of the chest as well, other more serious symptoms set in, insufficient circulation, rapid and weak pulse, low arterial pressure and overfilling of the veins, with defective respiration. Until Brauer suggested operative interference in this condition the prognosis was very bad indeed. Brauer's idea, to resect several ribs in front, and thereby to free the heart from some of its hindrances, has proved of great advantage in many cases. Professor Koch, of Groningen, operated in this case and although the results were not brilliant, at the present writing, eighteen months after operation, the condition is much improved. Fever and ascites have entirely disappeared and the liver has greatly decreased in size.

3. Gulland considers some anomalous cases of pernicious anemia in which the symptoms had been characteristic of other conditions. He mentions cases of pernicious anemia under the guise of amaurosis, peripheral neuritis, aphasia, gastro-intestinal disease, kidney disease, acute Bright's disease and pyemia. He emphasizes the need of making routine blood examinations in as many cases as possible, no matter what the symptoms.

The Edinburgh Medical Journal.
January, 1907.

1. *Mayo, W. J. *The Principles Underlying the Surgery of the Stomach and Associated Viscera.*
2. Lennander, K. G. *A Case of Volvulus of the Small Intestine at a Meckel's Diverticulum; together with Some Observations on "Subacute Ileus" and the Performance of Gastrostomy for Paralysis of the Small Intestine.*
3. Jamieson, W. A. *Darier's Disease.*
4. Lackie, J. L. *The Management of Some Difficult Occipito-Posterior Cases.*
5. *Hay, J. *Paroxysmal Tachycardia.*
6. Marshal, D. G. *Notes on Tropical Diseases.*

1. Mayo speaks of the great advance that is now being made in surgery of the stomach and intestines, the result of various scientific investigations which are putting all this work, which hitherto has been more or less empirical, on a firm scientific basis. He considers these changes of recent years from the point of view of embryology, anatomy, physiology and bacteriology.

5. This is a very detailed study of three cases of so-called paroxysmal tachycardia, with numerous venous

and arterial pulse tracings. Until recently most observers believed that these attacks were caused by some lesion of the central nervous system affecting the vagi. No ground for this view can be found at autopsy, however; Hay believes that although there may be lacking in these cases the normal inhibitory forces, the real source of trouble is in the heart itself, and particularly in the interauricular and auricular ventricular fibers. From his three cases he has taken many tracings, before, during and after attacks, which show that during an attack the auricle is acting independently of the ventricle, and its contraction does not precede that of the ventricle, as under normal conditions. In his cases, the paroxysms lasted from a few hours to seven or eight days, with the heart beating 150 to 300 times a minute. There was rarely much distress except while the attack was passing off, when severe symptoms of angina supervened.

Treatment should be largely prophylactic, avoiding mental and physical strain of all kinds. Often deep respiration will shorten an attack.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 2. JAN. 10, 1907.

1. *KOCH, R. *Report of the German Expedition for the Study of the Sleeping Sickness.*
2. *RUDINGER, C. *Effect of X-Rays on the Proteid Metabolism in Exophthalmic Goitre.*
3. BERGELL, P. *Hexamethylentetramin and Its Salts.* (Cystopurin.)
4. LOOSE, E. O. *The Clinical Value of Cystopurin.*
5. *JÜRGENS. *Diseases Resembling Typhoid.* (Concluded.)
6. PFISTER, M. *The Medical Treatment of Appendicitis.* (Concluded.)
7. BOLDT. *Glycosuria after the Disappearance of a Goitre.*
8. KRUEGER. *A Case of Intraperitoneal Rupture of the Bladder.*

1. In atoxyl (meta-arsenic anilid) Koch has found a remedy for sleeping sickness the action of which seems to be specific. Nine hundred and eighty-six patients have been treated. In many cases two injections on successive days are sufficient to produce a cure; in others the injections are repeated at the end of a month. In every instance, the trypanosomes disappear within a short time, and prompt recovery takes place except in some far-advanced cases. In these last, Koch assumes that changes in the nervous system have resulted which are irreparable, although the original cause of the disease, the trypanosomes, are removed. The diagnosis is made by examination of the fluid withdrawn from the swollen lymph nodes, in which the trypanosomes are regularly present; they are rarely to be found in the blood. Examination of the fly called glossina palpalis showed the presence of trypanosoma gambiense in 5 cases, in 2 of which it was found in the salivary glands, a situation in which the malarial parasite has been found in the mosquito. [This discovery of Koch promises to be of immense value in tropical Africa, parts of which have been depopulated by sleeping sickness.]

2. Rudinger confirms the favorable results obtained by Stegmann from the use of the x-ray in exophthalmic goitre. An increase in weight was observed, together with a retention of nitrogen; after each exposure the total nitrogen excreted by the urine was decreased.

5. Jürgens discusses the bacteriological diagnosis of typhoid and paratyphoid, especially with reference to agglutination reactions. It should be remembered that in some cases of true typhoid agglutinins are formed late, and in small quantity, and that typhoid bacilli may be cultivated from the stools of healthy persons (bacilli-carriers) or those sick with other diseases. Recent work has shown that a person may harbor the bacilli for a long time without showing signs of infection. The only absolute proof of the nature of the infection is cultivation of the bacilli from the blood, though a constantly increasing agglutinative titer as the disease advances makes the nature of the disease almost certain. Jürgens considers many of the "paratyphoid" cases in the literature to be only partial or "group" agglutinations, due to infection with the true typhoid bacilli. For it is well known that the members of the typhoid-coli group are closely related, and that a specific serum may agglutinate the corresponding bacterium in high dilution, the other members of the group in lower dilutions. Thus in a case observed by the writer, agglutination for paratyphoid bacillus-B occurred at a dilution of 1.400, and yet the disease was typhoid, as shown by the higher agglutination titer for the typhoid bacillus, and by the fact that the serum contained bacteriolysins for typhoid, but not for paratyphoid. Another point he brings out is that the paratyphoid bacillus causes other infections than paratyphoid fever proper. In many cases of meat and sausage poisoning, this bacillus has been recovered both from the spoiled food, and from the stools of the victims, and positive agglutination reactions have been recorded. The symptoms, however, do not resemble at all those of typhoid, but are those of an acute febrile gastro-enteritis, supervening without an incubation period. For such infections the name paratyphoid bacillosis would be more appropriate. He concludes with the observation that the diagnosis of typhoid should never be made on the results of examination of the stools and serum alone, but on these taken in connection with the clinical picture.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 2. JAN. 8, 1907.

1. *BINGEL, A. *The Influence of Beer Drinking and Duelling on the Heart of Young Adults.*
2. BÜRKER, K. *Thermodynamics of Muscle.*
3. BEST, F. *Correlation in Inherited Diseases of the Eye.*
4. *ARNSPERGER, H. *The Early Diagnosis of Phthisis by Means of the X-ray.*
5. *PFÖRRINGER and BUNZ. *The X-ray Diagnosis of Pulmonary Tuberculosis.*
6. NYROP, E. *Gastropexia and Retention.*
7. ROSENBACH, O. *Methods to Bring Out the Knee Jerk.*
8. *MEKUS, F. *A Case of Atrophy of the Liver Following Trauma, with Regeneration of the Organ after Talma's Operation.*
9. GOLDFLAM, S. *A Case of Congenital Fistula of the Lower Lip.*
10. FROMM, E. *Prophylaxis of Infections in the Waiting Rooms of Dispensaries for Children.*
11. *PFAUNDLER, M. *The Nature and Treatment of Disturbances of Nutrition in Infancy.* (Concluded.)
12. SOLTMANN, O. *The Mortality of Infants in Hospitals.* (Concluded.)

1. Bingel has investigated the effect on the heart of excessive beer drinking and bodily exertion (duelling) on university students, by means of the orthodiascope, and found that no change could be detected in the size of the heart in those whose hearts were previously healthy. Some students with obesity or previously damaged hearts, however, showed attacks of acute dilatation. For the production of the beer heart, it is probable, therefore, that a long period of excess is needed.

4. Arnsperger believes the use of the x-ray to be of great value in the diagnosis of doubtful cases of incipient phthisis. With the fluoroscope there is seen in early cases a diminution in size of the affected apex together with a loss in brightness. The normal apex becomes brighter during the act of inspiration. This difference is diminished or lost in the early stages of phthisis. Williams's sign, a diminution of the movements of the diaphragm of the affected side, was found inconstant, occurring in only 6% of the early cases, though more frequent in later stages.

5. Pförringer and Bunz also recommend the x-ray for early diagnosis in conjunction with the usual physical methods. A combination of the use of the fluoroscope and of plates gives the best results. In early cases slight diffuse or mottled shadows are seen at the apex, often at a time when physical signs are equivocal. In more advanced cases, the x-ray often gives a more correct idea of the extent of the process, and cavities can be diagnosed with greater precision. A cavity shows with the x-ray only when it is empty and surrounded by infiltrated lung tissue. Central foci and infected lymph glands may be detected when physical signs are entirely negative. A limitation of the movement of the diaphragm (Williams's sign) is probably largely due to pleural adhesions, and

is too inconstant to be of great value in the diagnosis of incipient phthisis.

8. Mekus reports a remarkable case in which after abdominal trauma there occurred jaundice and ascites. At the operation, the liver was found much decreased in size and the abdomen filled with inflammatory exudate. Talma's operation was performed. The liver gradually resumed its normal size and function, ascites did not return and the patient was discharged well. [This case is important as showing the remarkable power of regeneration possessed by the liver.]

11. Pfaundler's paper discusses the various theories as to why cow's milk is inferior to human milk in the feeding of infants. It is not suitable for abstraction.

Berliner Klinische Wochenschrift, No. 40.

Oct. 1, 1906.

1. *Quincke, H. *Toxic Hydrops.*
2. Mayer, A., and Milchner, R. *Topographic Percussion of the Heart in Childhood.* (Continued article.)
3. *Saito, S. *Sahli's Desmoid Reaction.*
4. Funck, C. *Why Leukemia Improves during Intercurrent Infections.*
5. Dinger, A. N. *The Treatment of Trachoma with Radium.*
6. *Westenhoeffer, M. *The Present State of our Knowledge of Epidemic Cerebrospinal Meningitis.* (Concluded.)

1. Under the name of toxic hydrops Quincke distinguishes that form due to lesions either of the capillary walls, or of the tissues themselves, caused by various toxic substances. He forms the hypothesis that the tissues may become altered in such a way as to attract water, and cites analogous experimental facts in support of his view. In this toxic group belong many cases of cachectic, and of so-called essential hydrops, especially those occurring after scarlatina and other infections. He reports an illustrative case, in which a desquamation resembling that of scarlatina followed the disappearance of the hydrops.

3. Sahli's desmoid reaction is carried out as follows: A small rubber bag is filled with methylene blue, iodoform or salicylic acid, and the neck is tied with catgut. Such a bag is swallowed by the patient immediately after a meal, and the time of elimination of the drug in the urine or saliva is noted. According to Sahli, catgut is digested only in the stomach, so that the time of elimination furnishes a measure of the secretory activity of the stomach. Saito shows by experiments in test tubes that catgut is also digested by a mixture of pancreas and intestinal secretion, and that methylene blue and iodoform are not absorbed in the stomach. The reaction depends, therefore, also on the motor activity of the stomach. Saito concludes that since the desmoid reaction depends upon so many factors, it has little diagnostic value.

6. Westenhoeffer, as the result of his researches in the recent epidemic of cerebrospinal meningitis, in Silesia, announces that there is constantly in the early stages a pharyngitis, due to the meningococcus. The adenoid tissue at the vault of the pharynx is chiefly affected; the meningococcus may be cultivated from the pharyngeal secretion and from the tissue. This pharyngitis is always present from the beginning, preceding the involvement of the meninges, and passes off in the course of a week or so. Westenhœffer regards this as undoubtedly the port of entry of the meningococcus. The nose is only secondarily affected. The infection of the meninges probably takes place by way of the blood current, rather than directly by way of the lymph channels; for this route speak the cultivation of the cocci from the blood, and the presence of endocarditis, arthritis, encephalitis, etc. The meningococcus is also found in the pharynx of healthy persons, but only in those who have been exposed to the disease. Such "cocci-bearers" are an important means of spreading infection, and should be isolated. The reason that children form the majority of those affected (90% in this epidemic) is that the adenoid tissue is more developed and pharyngeal infections more common at this age. Moreover, the majority of adults sectioned by Westenhœffer showed hyperplasia of the lymphatic tissue, so that in this respect they resembled children.

Oct. 8, 1906.

1. *v. Baumgarten, P. *Experiments on the Hematogenic Origin of Tuberculosis of the Lymph Nodes.*
2. Cohn, E. *The Use of Hot Air in the Treatment of Emphysema, Bronchitis and Asthma.*
3. Levinson, J. B. *Barberio's Test for Semen.*
4. Bröse, P. *The Care of the Abdominal Walls after Parturition.*
5. Mayer, A., and Milchner, R. *The Topographic Percussion of the Heart in Childhood.* (Concluded.)
6. Kutscher, K. H. *The Etiology and Epidemiology of Epidemic Meningitis.*

1. Von Baumgarten and Campiche produced generalized lymph node tuberculosis by injecting bacilli intravenously into rabbits. In the earlier stages the tuberculosis of the lymph nodes predominated, later that of the lungs. This is probably because the bacilli multiply in the nodes, get into the blood current again and infect the lungs. The process was always more marked in the bronchial than in other nodes, probably because of added infection from the pulmonary process. The possibility that infection of the lymph nodes may take place by way of the blood current should be borne in mind.

Oct. 15, 1906.

1. Vulpius, O. *Failures in Tendon Transplantations.*
2. Hudovernig, C. *The Value of Methylatropine in Diseases of the Nervous System.*
3. *Danziger, F. *The Early Diagnosis of Chancre.*
4. Engel, C. S. *The Serum Treatment of Syphilis.*
5. *Levaditi, C. *Remarks on Schultze's Article Entitled "Silver Spirochete"* (*Berl. Klin. Woch.*, No. 37.)
6. Halle, M. *Is External or Internal Operation Preferable in Empyema of the Antrum.* (Continued article.)
7. Martens, M. *The Structure and Equipment of Modern Operative Rooms.*

3. Danziger reports five cases in which the diagnosis of chancre could be made by the demonstration of spirochetes in smears, at a time when the clinical appearances were misleading. The diagnosis was confirmed in every case, either by the prompt healing of the ulcer after injections of mercury, or by the appearance of secondary symptoms.

5. Levaditi refutes the arguments of W. Schultze, who claimed that the "spirochetes" demonstrated by the Levaditi silver impregnation method are nothing but elastic or nerve fibers or connective tissue or "something else." He points out that the finding of silver spirochetes in the lumina of blood and lymph vessels in syphilitic lesions, and the presence of the spirochete gallinarum in the yolks of eggs from the ovaries of infected hens, definitely exclude the possibility of such an origin.

Correspondence.

LETTER FROM HONOLULU.

Rarity of Cancer in the Sandwich Islands. Possibility of Yellow Fever.

Honolulu, Sandwich Islands,

Nov. 30, 1906.

Mr. Editor: The rarity of cancer here is a fact which I have not seen mentioned, though it may be well known. Cancer of the stomach is so rare here, I am told, that gastro-enterostomy has been performed but once in the islands for this disease. Cancer of the breast is even more uncommon than cancer of the stomach.

The presence here of the mosquito (Stegomyia fasciata) which transmits yellow fever, causes speculation as to whether or not, when the Panama Canal has been opened, the disease itself may not gain a foothold and make terrible ravages in the Hawaiian Islands. This point has, I am aware, been brought forward and elaborated by Dr. Patrick Manson and other authorities on tropical diseases.

Very truly yours,

Geo. C. Shattuck, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 26, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,611	452	Quincy	9	5
Chicago	735	214	Waltham	7	2
Philadelphia	—	—	Gloucester	2	—
St. Louis	—	—	Pittsfield	10	—
Baltimore	239	50	Brookline	—	—
Cleveland	—	—	North Adams	4	0
Buffalo	—	—	Chicopee	7	6
Pittsburg	—	—	Northampton	10	0
Cincinnati	—	—	Medford	1	—
Milwaukee	—	—	Beverly	6	—
Washington	—	—	Hyde Park	4	—
Providence	86	25	Newburyport	—	—
Boston	239	43	Leominster	3	1
Worcester	39	6	Melrose	—	—
Fall River	48	25	Woburn	5	2
Cambridge	27	13	Marlborough	3	0
Lowell	41	14	Westfield	7	3
Lynn	26	2	Peabody	—	—
New Bedford	30	11	Revere	1	—
Springfield	27	3	Clinton	8	2
Lawrence	27	13	Attleboro	3	0
Somerville	20	4	Adams	6	—
Holyoke	19	8	Gardner	—	—
Brockton	10	4	Milford	5	—
Malden	13	2	Weymouth	4	0
Salem	10	1	Framingham	3	—
Chelsea	13	—	Watertown	4	1
Haverhill	7	—	Plymouth	—	—
Newton	9	3	Southbridge	4	4
Fitchburg	—	—	Wakefield	—	—
Taunton	13	0	Webster	—	—
Everett	13	2			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 23, 1907.

BLUE, RUPERT, passed assistant surgeon. Granted leave of absence for 2 days from Jan. 22. Jan. 21, 1907.

LLOYD, B. J., passed assistant surgeon. Ten days' leave of absence granted from Dec. 24, amended to read 12 days. Jan. 23, 1907.

WARREN, B. S., passed assistant surgeon. Granted leave of absence for 5 days from Jan. 16. Jan. 18, 1907.

SIMPSON, FRIENCH, assistant surgeon. Relieved from duty at Baltimore, Md., and directed to proceed to Fort Stanton, N. M., reporting to medical officer in command for duty and assignment to quarters. Jan. 22, 1907.

MASON, M. R., pharmacist. Granted leave of absence for 7 days from Jan. 15, 1907, under paragraph 210 of the Service Regulations.

PROMOTION.

BOGGESS, J. S., assistant surgeon. Commissioned as passed assistant surgeon, to rank as such from Dec. 5, 1906. Jan. 12, 1907.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING FEB. 2, 1907.

J. F. LEYS, surgeon. Detached from Norfolk Hospital, and ordered to duty with Department of Government and Sanitation, Canal Zone, sailing from New York Feb. 5, 1907.

E. H. MARSTELLER, surgeon. Detached from Naval Recruiting Station, Baltimore, Md., and ordered to U. S. S. "Franklin."

C. H. DECKER, surgeon. Orders to U. S. S. "Franklin" revoked.

R. A. BACHMANN, passed assistant surgeon. Detached from Naval Recruiting Station, Minneapolis, Minn., and ordered to U. S. S. "Franklin."

R. H. MICHELS, assistant surgeon. Orders of Jan. 22, modifying orders of Jan. 4, revoked.

J. T. MILLER, acting assistant surgeon. Detached from U. S. S. "Franklin," and ordered to Naval Recruiting Station, Minneapolis, Minn.

J. E. GILL, passed assistant surgeon. Orders of Jan. 22, 1907, revoked.

F. M. BOGAN, passed assistant surgeon. Ordered to Naval Recruiting Station, Baltimore, Md.

R. J. STRAETEN, assistant surgeon. Ordered to duty at Naval Hospital, Mare Island, Cal.

C. C. GRIEVE, assistant surgeon. Detached from U. S. S. "Southery," and ordered to duty at Navy Yard, Portsmouth, N. H.

J. P. TRAYNOR, passed assistant surgeon. Detached from Navy Yard, Boston, Mass., and ordered to "Scorpion."

R. B. CHAPMAN, assistant surgeon. Detached from Navy Yard, Mare Island, Cal., and ordered to Naval Recruiting Station, Oklahoma, Okla.

J. F. MURPHY, passed assistant surgeon. Detached from U. S. S. "Georgia," and ordered to U. S. S. "Scorpion."

J. P. TRAYNOR, passed assistant surgeon. Orders of Jan. 30 modified. When detached from Navy Yard, Boston, Mass., and ordered to U. S. S. "Georgia."

SOCIETY NOTICE.

MEDICAL MEETING OF THE BOSTON MEDICAL LIBRARY. —The program for the Medical Library meeting on the evening of Feb. 13, at 8.15 o'clock is as follows: "Physical Training in the Boston Public Schools," by Jas. B. Fitzgerald, M.D., Supervisor of Physical Training in the Boston Public Schools. "School Hygiene—as it is and as it ought to be," by S. H. Durgin, M.D., Chairman of the Boston Board of Health. "Physical Welfare of Public School Children, investigated by a Committee of Physicians," by Geo. S. C. Badger, M.D., Boston. "Medical Supervision *versus* Medical Inspection of the Public Schools," by Thos. B. Harrington, M.D., Lowell. Discussion by Geo. H. Martin, Drs. Arthur Jelly and Joel E. Goldthwait.

EDWIN A. LOCKE, M.D.,
Secretary.

RECENT DEATHS.

DR. ARNOT SPENCE, of New York, a visiting physician to St. Joseph's Hospital for Consumptives, died on Jan. 26, after a short illness. He was graduated from Bellevue Hospital Medical College in 1884.

DR. CHARLES WILMOT TOWNSEND, of New Brighton, Borough of Richmond, New York City, died at the S. R. Smith Infirmary on Jan. 27 from pistol shot wounds inflicted by an assassin in the early morning hours of the day previous. The man who is believed to have committed the crime is under arrest, and the motive for the act appears to have been an extraordinary idea of revenge because he had become possessed with the conviction that the doctor was in some way responsible for the death of his wife. As a matter of fact, however, Dr. Townsend, when called to her case, found the woman, who was pregnant, suffering from the most marked uremic poisoning. He expressed the opinion that she would die if left at her home, and advised her immediate removal to the Infirmary. This was accordingly done; but, in spite of all efforts to save her, she died in giving birth to her child. The untimely death of Dr. Townsend, in this tragic way, has been the cause of profound sorrow among a large circle of friends, as he was one of the leading physicians of the Borough of Richmond and widely known throughout Staten Island. He was in the fortieth year of his age, and was graduated from the College of Physicians and Surgeons, New York, in 1890. At the time of his death he was surgeon to the S. R. Smith Infirmary at New Brighton, Staten Island, and consulting surgeon to the Nursery and Child's Hospital, Manhattan. His wife, with whom he was in bed at the time of the murderous assault, is a daughter of the late Dr. Theodore Walser, and herself a graduate in medicine. Her brother, Dr. William C. Walser, like his father before him, is a prominent Staten Island physician and surgeon.

BOOKS AND PAMPHLETS RECEIVED.

A Clinician's Observations of Opsonic Therapy. By Charles D. Aaron, M.D. Reprint.

Gastrogenic Diarrhœa. By Charles D. Aaron, M.D. Reprint.

Practical Dietetics with Reference to Diet in Disease. By Alida Frances Pattee. Third edition. New York: A. F. Pattee.

Twenty-second Annual Report of the Directors of the New York Post-Graduate Hospital. For the year ending Oct. 1, 1906.

Woman. A Treatise on the Normal and Pathological Emotions of Feminine Love. By Bernard S. Talmey, M.D. Illustrated. New York: The Stanley Press Corporation. 1906.

A Case of Tubo-abdominal Pregnancy Secondary to an Incomplete Tubal Abortion. By B. S. Talmey, M.D. Reprint.

A Plea for the Simple Round-Ligament Ventrosuspension. By B. S. Talmey, M.D. Reprint.

Original Articles.

THE TREATMENT OF TUBERCULOSIS OF THE HIP-JOINT (HIP DISEASE).

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

The following paper is presented for the purpose of stating as clearly as possible the principles which are of importance in the treatment of tuberculosis of the hip-joint. Much confusion exists in the minds of many of our profession as to the importance of various details in such treatment, and it is for this reason that the whole subject of the treatment of tuberculosis of this joint, both the operative as well as the non-operative, is here presented. In so doing it is the desire of the writer to emphasize the principles upon which, it seems to him, the treatment should be based, rather than to attempt to advocate special forms of apparatus or other technical features. The application of the principles in a given case must be left to the individual who may be responsible for that case, and any apparatus or method which makes the application of these principles possible should be considered satisfactory, no matter how unlike, in appearance or form, they may be to those more commonly used.

The opinions here expressed are based upon a fairly large experience, and are those which have been in constant use in the Massachusetts General Hospital and the Carney Hospital, as well as in the writer's private practice, during the past six years. The years of previous experience with other methods have simply served to emphasize the value of those here presented, and as the opinions are in keeping with those which are recognized as desirable in the treatment of tuberculosis of other parts of the body they are offered without apology, even though they may differ somewhat from those advocated by other writers.

In the treatment of tuberculosis of the hip-joint it should be remembered that the disease is tuberculosis, and that too much stress cannot be laid upon the general hygienic measures which have been described so fully in the many popular and scientific articles that have appeared in connection with this disease as it shows itself in the lungs. An abundance of fresh air should be insisted upon, with rooms always generously ventilated, with life spent in the open air as much as possible, even living at times entirely in tents or shacks; and besides this an abundance of good food, together with proper bathing, and other details of good hygiene are all of importance. The different appearance presented by those treated in this way and those treated by the older methods in their homes or in close hospital wards is more striking than any word picture would indicate. The general health improves, the circulation is better, the appetite is more keen, the food is more perfectly digested, and the whole appearance is one of health, instead of sickness so universally seen with such cases when confined indoors. Under such wholesome conditions not only is there marked improvement in the general health but there is a corresponding improvement in the local disease. The acute symptoms subside and the healing goes on more rapidly because of the increased local resistance which must result from this gain in the general health.

For local treatment the principles which are of chief importance consist in the protection of the joint from the irritation which would result from use or from the reflex muscle spasm, with, at the same time, as little interference with the joint function as is possible.

To accomplish this the motions of the joint must be limited, but the degree of limitation or the duration of this limitation must depend upon the severity of the disease in the given case. This limitation may be obtained most easily by rest in bed, and while this is of more value in connection with apparatus, yet nevertheless alone it is of importance. In the untreated cases it is in this way that the protection is instinctively obtained, but as by this alone the muscular spasm is only partially controlled, the healing is necessarily slow and deformities inevitably result.

More complete protection is to be desired and can be obtained with varying degrees of efficiency by means of any of the various splints or dressings which have been devised for this purpose, the special form to be determined by the merits of the individual case and the personal equation of the physician. That which has given by far the best results, with the writer, in the early cases of hip-joint tuberculosis before deformities have developed, is the plaster of Paris spica bandage extending from just above the knee to just above the crests of the ilia, applied with the hip in the position of physiological rest. This dressing is not expected to completely immobilize the joint, but the limitation is so definite that the motion which remains is of little importance. The position of physiological rest or muscle balance is chosen in order to control the muscle spasm, which is one of the most important elements of irritation in disease of this special joint, and which must be overcome before treatment can be carried on satisfactorily. Because of the naturally greater mobility of the hip than the other joints and because of the greater number of muscle groups involved in these motions, this reflex spasm is more marked in disease of the hip, and its results are more injurious than is true of the same feature in any of the other joints. In the knee or in any hinge joint there are but two groups of muscles to be considered, the flexors and the extensors, and as long as they properly antagonize each other there is little difficulty. Under such conditions the position of ease or balance is obtained when the joint is straight or nearly so, and explains the fact that in the knee as long as it is in this position there is little if any spasm, but that as soon as flexion develops the spasm of the posterior muscles at once becomes evident, disappearing

again as soon as the straight position can be assumed.

In the hip there are not only flexors and extensors, but abductors and adductors, as well as rotators, so that the balance between these groups, which is nature's protection against deformity, is very hard to maintain. If the leg is drawn in, the adductors have the advantage over the abductors, and the common deformity of adduction with the adductor spasm is the result. If flexion begins, the extensors work at a disadvantage, and the spasm of the flexor muscles tends to constantly increase the deformity. So also is it true of the abductors and rotators.

Recognizing these facts, if now the balance between these various groups of muscles can be obtained and maintained for a short time, the spasm ceases, and not only is this feature of the joint irritation removed, but the effect which this irritation has upon the reflex atrophy of the leg is also eliminated. The position in which this muscle balance is most perfectly obtained is the position in which the head of the femur rests mostly easily and evenly in the acetabulum, and practically consists of about 20° of flexion, 15° to 20° of abduction, and 10° of outward rotation.

In such a position the plaster of Paris dressing (if that be the form of apparatus decided upon) should be applied, extending from the knee to just above the crests of the ilia. The knee is purposely not included, nor is any attempt made to immobilize the lower spine, as this mobility of the adjacent joints is of importance in preserving the circulation in the affected part, while the slight amount of motion to the hip which their use represents is of little consequence. With the early cases, in such a dressing the patients may be allowed and should be encouraged to walk about bearing the weight upon the leg. By so doing, the strength of the part is maintained, the circulation of the whole leg is stimulated, the reflex atrophy is much less, and the resistance which the part must offer to the extension of the disease is necessarily greater.

This principle of use up to the limit of toleration is, of course, not new in the treatment of tuberculous disease in other parts of the body, since, for instance, with tuberculosis of the lungs the use of the chest is not only not restricted but, on the contrary, is encouraged as much as possible, by bracing climates, high altitudes, breathing exercises, including even the pneumatic cabinet, and all such measures as tend to give strength to the part affected. With the disease in the hip or in the other joints the same general principle should be constantly before us, and the treatment should interfere with the function of the part as little as possible. Practically the motion must be limited, and limited quite markedly, but if the position is correct, weight bearing with the free use of the adjacent joints is an advantage. Not only is the extension of the disease lessened by keeping up the proper tone of the part, but for the same reason the cicatrization also takes place more rapidly, so that treatment can be discontinued in much shorter periods than is possible with methods which interfere more with the function of the part.

The plaster of Paris dressing should be removed in one or two months, and should be reapplied until evidence of active disease, as shown by pain and muscle spasm, has passed. When this time is reached, and in the mild and early cases this may not require more than a few months, the rigid dressing should be replaced by something which allows more motion but still offers some protection to the joint. For this purpose a splint made of stiffened leather of the same shape as the plaster of Paris splint is quite satisfactory. This is not as rigid and consequently allows more motion than the plaster of Paris, and is easily removed for bathing or other purposes. In a short time, if all goes well, the splint should be omitted at night and gradually can be entirely discontinued. Practically, as a splint of this kind is worn, it gradually softens so that the transition from the rigid support to nothing is not a sudden one.

Bed and traction treatment. — In case the disease be more acute or of longer duration, so that all of the symptoms are more marked with the presence of undesirable deformities, it may not be possible to obtain the desired position for the joint at once. If this be the case the patient should be put to bed with traction and treated until the desired position can be obtained. For this the patient should be kept upon the back with the leg raised and supported in the position of the deformity. In this position traction should be applied by means of weight and pulley and continued until the muscle spasm has been overcome so that the leg can be straightened. When this has been accomplished, the plaster of Paris bandage, or whatever other dressing is decided upon, should be applied in the position of physiological rest, described above, and the traction discontinued. For a short period the patient should be kept in bed to allow the joint process to still further quiet down and should then be allowed up and about, using crutches at first, these being gradually discontinued as weight-bearing without pain becomes possible.

Occasionally, although very rarely, such a dressing does not control the sensitiveness and the muscle spasm, and under such circumstances either the plaster of Paris dressing should be made to more completely immobilize the joint by carrying it down to the toes and up to the ribs, or a traction hip splint of the Taylor or Dane pattern should be used. Either of these features should be of temporary use only and should be substituted for the plaster of Paris spica or a less confining dressing upon the cessation of the acute symptoms. In this way the interference with the nutrition which invariably results from the continued use of the long fixed dressing or the traction apparatus is prevented, and the growth not only goes on but the healing is not retarded.

Use of the affected leg in all such cases should be encouraged as soon as possible in order to stimulate the circulation and the bone growth, recognizing that by so doing there is the best chance for preserving the function of the part. In the mild cases the healing and encapsulation of the disease is rapid, leaving at times very little to show for its presence. In the severe cases, which always recover under any treatment with marked limitation of motion and with much weakened joints, the best possible functional result is a firmly anchylosed joint in the position most favorable for use. A few degrees of motion in such cases is undesirable, as the joint is not strong enough for this limited range of motion to be of practical use, and the fact that there is a little motion necessarily produces strain of the joint in use, with, as the result of this in many cases, later on the starting up of the original disease. Such relapses are always serious and so commonly associated with extension of the disease to other organs that largely because of this in these severe cases a firmly anchylosed joint should be tried for.

From the point of view of the practical use in such an anchylosed joint, the flexion, abduction, and outward rotation make walking possible with the body erect and without the rolling gait seen when adduction is present. The abduction serves as flexion in sitting, while on standing the lumbar spine compensates for both the flexion and abduction.

Operative treatment, excision, etc. — In the large majority of the cases if treatment can be started in the early stages of the disease and if it can be carried out upon the lines indicated above, little else is necessary; healing takes place with a useful leg, without undesirable deformity, and with varying degrees of limitation of motion depending upon the virulence of the disease. Occasionally, however, other and more radical measures are required. The disease may be so far advanced and associated with so much destruction before treatment can be started that conservative measures fail to prevent extension of the process. At other times the location of the focus of the disease is such that an attempt to remove it may be considered justifiable in order to prevent possible extension and to bring about more rapid healing; and again, as the result of lack of treatment or imperfect treatment in the beginning, deformities may be present which will not yield to conservative measures. These and various other features may be present in any given case, and the treatment of these must depend not only upon the present condition with the immediate result, but quite as much upon the probable condition years hence.

If the disease is far advanced with much bone destruction or is of the very virulent type the first consideration is with reference to the life or general health of the individual. The joint should be protected in the most favorable position; but aside from this the local process should be ignored in the attempt to improve the general condition. Life out of doors should be insisted upon, and besides this, forced feeding, stimulants, tonics, etc., should be pushed to the limit of toleration in order to improve the general health and consequently increase the resistance to the progress of the disease.

At times under such conditions, even in seemingly hopeless cases, marked improvement takes place, so that nothing further is necessary. At other times, however, in spite of this, the improvement is so slight that other and more radical measures become necessary in order to save life or to preserve the function of the part. To meet such conditions various operations may be required, but the exact operation or the exact steps in the given operation are to be determined by the conditions found at the time. To explore the joint either the anterior incision, just in front of the trochanter, or the posterior incision, just behind the trochanter, may be used. For simple exploration the anterior incision is to be preferred, since none of the muscular attachments have to be sacrificed. When there is extensive disease, however, and it is desirable to remove as much of the diseased tissue as possible, the posterior incision is better, as it exposes the joint more fully. Through this latter incision the head or upper part of the femur can easily be removed if it is considered necessary and the acetabulum is readily reached for drainage. In such an operation, while as much of the diseased tissue should be removed as possible, it must always be borne in mind, and it is for this reason that such operations are resorted to only as extreme measures, that no matter how thoroughly the operation may be performed, it is absolutely impossible to entirely remove the disease. Some of the tuberculous tissue must remain, and for this reason every precaution should be taken at the time of the operation and afterwards to prevent absorption from taking place. It is this common extension of the disease, together with the functionally imperfect leg which results from the extensive removal of the bone structures, that should prevent such operations from being used except as extreme measures. In such operations, in order to lessen the possibilities of absorption and possibly at the same time to destroy some of the remaining disease, before the wound is closed the entire operative field should be thoroughly wiped with the tincture of iodine. After this the wound should be closed loosely with temporary drainage to allow the escape of the post-operative exudate, but as soon as this has passed, closure of the wound should be encouraged.

The post-operative treatment in such a case, except for the wound which should be treated like a sterile wound, is the same as that used in an early case of the disease. The joint should be held in some fixed dressing in the position of least joint strain and most favorable for function in case anchylosis takes place. The flexed, abducted and outwardly rotated position is undoubtedly that most favorable, as has been described, but as in such extreme cases atrophy and destruction have frequently resulted in much shortening, more

abduction may be wise, since in this way the apparent difference in length of the legs is lessened.

Use of the leg in weight bearing should be encouraged, as soon as the patient is able to get about, increasing the amount of use as the sensitiveness disappears. At first the toes only may be touched to the floor, but with perseverance the crutches are used less and less and the leg carries more and more of the weight. This use improves the local circulation and consequently favors healing.

Removal of focus of disease. — At times, although quite rarely, the location of the focus of disease is such that its removal is possible. Naturally this must apply to disease in the trochanter or in the neck of the femur, and only by means of the x-ray can the localization be made definitely enough to justify attempt at removal. Under such conditions the incision which will best expose the lesion should be used, and a sufficient amount of the bone removed for the cavity to be thoroughly cleaned out. Every precaution should be taken to avoid absorption from the fresh wounds, and, as in the operations just described, the entire operative field should be thoroughly wiped with the tincture of iodine. Aside from provision for the escape of the post-operative exudate no drainage should be allowed. As in such a case the joint itself is not involved, protection of the joint after the operation for a long time is not necessary, unless symptoms develop that would indicate the extension of the disease or the presence of some other focus.

Correction of deformities. — At times deformities exist which are not only trying to the patient because of the unsightliness, but which result in so much strain in regular use that a diseased area which has been quiescent may become active. For the correction of such deformities several operations are in use. Occasionally in rare instances the forcible correction of the deformity is justifiable. Ordinarily it should be avoided because of the danger of making active the old disease, but in certain cases if there is only a slight amount of motion present so that this renders the joint more liable to strain, the correction of the deformity in this way may be allowed, expecting that the disease will be started up, but hoping that in the new healing firm anchylosis will result in a position more favorable for use. Should such a procedure be undertaken, sufficient force should be used to correct the deformity, but no unnecessary force or motion should be allowed and the joint should at once be fixed in the position desired.

If this procedure is not considered wise, or if the hip is already anchylosed so that manipulation would be of no avail, osteotomy below the seat of the disease is indicated. For this the bone should be divided transversely just below the trochanter or obliquely through the trochanter. If there is firm anchylosis either incision will do, but if there is some motion in the joint the upper fragment is better controlled by using the oblique-trochanteric section and impacting the two portions. The post-operative treatment consists simply of fixing the leg in the position desired and holding it there until the union is firm. Since with the deformity there is usually considerable actual shortening, the position should be planned so as to make the apparent length of the affected leg as great as possible. Twenty degrees of flexion should be provided with the slight outward rotation of the leg, as described in connection with the treatment of the acute disease, but the abduction, instead of being 15° to 20°, can be increased to as much as 30° or 35°, if necessary, this increase necessitating on standing or walking an increase in the tilting of the pelvis. With the leg in such a position the patient can stand or walk erect, while in sitting the flexion and abduction both serve as flexion, so that this posture is not awkward.

The age at which such an operation should be performed is of importance, especially in connection with the after-treatment. Whenever possible it should be avoided under eighteen years of age, since the upper part of the femur is not fully ossified previous to that time. If such an operation is considered advisable under this age fixation should be kept up for five or six months at least, while in an adult with bones fully ossified three months is usually ample.

Pseudarthrosis. — At times when complete anchylosis exists it is desirable to obtain motion even though such a joint is not as stable for weight bearing as the anchylosis. This should not often be necessary since, as has already been stated, a firmly anchylosed hip with no undesirable deformity is much better for all round use than any joint which could result from this operation. When, however, both hips are involved and both are anchylosed it is better for general use to obtain motion in one, even though the joint may not be as firm for weight bearing as before. Pseudarthrosis is obtained by removing the head of the femur with the top of the trochanter, and turning in, between the exposed surfaces of bone, a flap of muscle or any available tissue so that bony union cannot take place. The after-treatment consists of protection only until the healing is complete, after which motion and use should be encouraged.

Abscess. — In case abscess develops in the course of the disease it should be ignored, unless its presence causes inconvenience, or unless it is affecting the general health. In the early stages if the capsule is intact and the abscess develops within the joint, the tension upon the capsule which such an abscess represents frequently causes great pain, and justifies incision of the capsule in order to relieve the tension. This is not often necessary, as usually the capsule has already been destroyed so that the distention is impossible. Under other conditions the abscess should not be disturbed until it has come well to the surface, and then it should be aspirated whenever possible, this to be repeated as often as the refilling makes it necessary. If for any

reason more free drainage is necessary or desirable, a small incision or incisions should be made. It is to be remembered that it is impossible to remove all of the disease in such a case, and as the abscess is merely a symptom, nothing more than drainage should be attempted. After such an incision drainage should be arranged by means of a wick for three or four days, this then to be removed and healing encouraged. Such an abscess should not be scraped out, as it simply opens points for absorption, nor should irrigation be used, as there is more danger of carrying other organisms in than benefit to be derived. In all of the treatment of such abscesses the dressings should be as infrequent as possible and extreme care should be taken to prevent the wound from becoming infected with other organisms, as the danger from these secondary infections is quite as serious as the danger of the primary disease.

Opsonic index. — In all of these operations which may have to be performed while the tuberculous disease is active, and in the non-operative cases in which the severity of the disease suggests a degree of virulence on the part of the organism that it is not easy for the natural resistance of the individual to withstand, in all of these cases, an attempt should be made to increase the resistance of the individual to the disease, as is suggested by the theory of the opsonins. In case operation is considered the opsonic index should be tested and if found to be low should be raised before this is performed. It is probable that with this the prognosis can be made more favorable, while in certain other cases the operation may be not required. This method is, of course, too new to speak of its merits from large experience, but as far as it has been observed it has been beneficial, and it is so in keeping with the progress of scientific medicine that it seems reasonable and should be tried, especially as there is little risk in its use if the proper precautions are taken.

SOME STATISTICS OF INDIGESTION IN DERMATOLOGICAL PATIENTS.

BY CHARLES J. WHITE, M.D.,
Instructor in Dermatology in Harvard University.

This study was suggested by the increasing conviction in the writer's mind that many chronic dermatoses may be due to errors of metabolism, either in a direct or in an indirect way in preparing the soil for the growth of bacteria. For this reason it was determined to question the patients who came to the skin clinic of the Massachusetts General Hospital as to their powers of stomachic digestion. It was thought advisable to investigate this function only in adults, men and women who (in hospital practice) had reached an age when a definite mode of life had been established, people who could answer our questions intelligently.

During the months of July, August and September, 819 new patients came to the clinic, and 438 of these men and women had reached the age of eighteen, a starting point perhaps arbitrarily chosen to determine the prevalence of indigestion. All of the 438 individuals were questioned as to the presence of pain in the gastric or cardiac regions after eating; as to eructations from the stomach; as to sensations of heaviness, weight, distress or discomfort after meals; as to regurgitations and, finally, as to constipation. Temporary or accidental occurrences of any of these symptoms were not admitted. These figures relate only to habitual conditions.

As a result of these inquiries, the following statistics were obtained:

Of the whole number questioned 260 or 59+% showed one or more of these symptoms.

There were 228 men investigated of whom 120 or 52+% admitted the existence of one or more of these symptoms; and of the 210 women questioned 139 or 65+% were similarily affected.

The statistics of race were computed, and of the 163 Americans 104 or 62+% acknowledged one or more of the conditions sought; of the 165 Irish, 94 or 57% were dyspeptic; while of the 85 Jews, 47 or 55+% came into this category. The twenty-five remaining individuals belonged to six other nations, but their numbers were too small to admit of any reliability from a statistical point of view.

The formation and eructation of gas was the most prevalent symptom. In the 438 individuals 173 admitted its presence; while 158 mentioned regurgitation, 138 heaviness and distress, and 86 complained of pain. Constipation was present in 141, but this condition was not counted in this study as evidence of stomachic indigestion. This symptom appeared in many of these subjects, however, who were otherwise free from other disturbances of digestion.

The patients were questioned also as to their inability to digest certain classes or individual articles of food and their answers were entirely in accord with our accepted ideas of idiosyncrasy. No one mentioned any indigestible food with which the medical world is not already familiar.

Dividing foods into their classes, nineteen persons could not digest fats; eleven, acids; ten, meats; four, salt foods; two, sweets or fish; and one, condiments. Of special articles of food, one patient could not digest oysters; one, mackerel; seventeen, pork; seven, corned beef; three, bacon or eggs; two, beef, lamb, veal, or ham; sixteen, cabbage; seven, beans; four, tomatoes or cucumbers; three, oatmeal or onions; two, corn or potatoes or bread; one, green vegetables; two, oranges; seven, pastry; three, cake; one, candy; six, pickles; one, cheese; six, coffee; two, milk or tea; one, beer.

During this period of investigation, 61 different diseases were diagnosticated in these 438 patients. The subjoined table enumerates them in two columns. On the left are placed the patients who exhibited signs of indigestion, while in the right hand column appear the non-dyspeptics.

Acne rosacea,	5	2
Acne vulgaris,	15	12
Alopecia areata,	2	0
Angioma,	1	0
Carcinoma,	0	1
Cellulitis,	1	1
Chloasma,	0	1
Dermatitis,	7	2
Dermatitis herpetiformis,	1	0
Dermatitis medicamentosa,	4	1
Dermatitis venenata,	14	20
Dysidrosis,	1	0
Eczema,	43	24
Eczema seborrhoicum,	6	1
Edema circumscriptum acutum,	3	0
Epithelioma,	7	4
Erysipelas,	0	1
Erysipeloid,	1	1
Erythema induratum,	1	0
Erythema multiforme,	0	3
Erythema nodosum,	1	0
Erythema scarlatiniforme,	1	0
Fibroma (multiple),	1	0
Folliculitis staphylogenes,	3	5
Furunculosis,	4	3
Herpes simplex,	1	0
Herpes zoster,	3	2
Hydroa estivale,	0	1
Hyperidrosis,	2	2
Impetigo contagiosa,	9	10
Keratosis,	1	0
Keratosis pilaris,	1	0
Leucoderma,	0	1
Lichen planus,	0	1
Lupus erythematosus,	3	1
Lupus vulgaris,	0	1
Melanoderma,	0	1
Miliaria,	2	1
Morbilli,	1	0
Paronychia,	2	1
Pediculosis capillitii,	2	2
Pityriasis rosea,	0	1
Pruritus,	6	1
Pruritus senilis,	1	1
Para-psoriasis,	1	0
Psoriasis,	10	10
Purpura,	1	2
Sarcoma,	0	1
Scabies,	11	10
Scrofuloderma,	0	1
Seborrhea capitis,	10	2
Syphilis,	28	20
Tinea favosa,	0	1
Tinea tricophytina,	3	1
Tinea versicolor,	6	5
Ulcus molle,	1	1
Ulcus varicosum,	13	10
Urticaria,	17	3
Verruca,	1	0
Verruca plana,	1	0
Vitiligo,	1	2
Totals,	260	178

Such figures were unexpected, and the great apparent proportion of stomachic indigestion in so many diseases precludes our laying much stress on the relative frequency of digestive disturbances in the few diseases which dermatologists have, from time to time, associated with indigestion. On the other hand, the statistics of most of the diseases enumerated in the above table are far too few in number to prove reliable individually. We are simply confronted with the fact that out of every one hundred persons who consult our skin clinics we may expect to find approximately 59 with more or less disordered digestion.

The dermatoses hitherto associated etiologically with indigestion are acne rosacea, acne vulgaris, eczema(?), eczema seborrhoicum, pruritus, seborrhea (?) and urticaria, and in this investigation the respective percentages found are as follows: 71+%, 55+%, 64+%, 85+%, 85+%, 83+% and 85%. The figures are significant, for, with the exception of acne vulgaris, we find the percentages just mentioned well above the average (59+%) obtained in our 438 individuals.

The writer is well aware that such inferences are superficial, for the numerical results obtained relate only to symptoms and do not record the actual chemical errors of metabolism. The *post hoc, propter hoc* inferred in the present deductions does not rest upon the solid foundations of biological chemistry, but these relatively conclusive clinical proportions should serve as a basis for some future chemical research which may enable dermatologists to treat these obstinate cutaneous symptoms in a more scientific and more successful manner than at present.

Summary. — From these various figures, then, it has been demonstrated:

1. That 59% of hospital-seeking skin patients have one or more symptoms of stomachic indigestion.

2. That 52% of the men are so affected against 65% of the women.

3. That Americans head the list of dyspeptics with 62%, while the Irish follow with 57% and the Russian or Polish Jews present 55%.

4. That eructations are the most prevalent symptom of dyspepsia and occur in 39+%, regurgitation in 36+%, epigastric weight in 31+%, and pain in 19+%.

5. That our established ideas as to the digestibility of certain classes of foods and as to the indigestibility of certain special articles are correct.

6. That our previous etiological association of certain dermatoses with dyspepsia is substantiated with one exception, for whereas our present standard is 59+% we have found in acne rosacea 71+%, in acne vulgaris (the exception just mentioned) 55+%, in eczema 64+%, in eczema seborrhoicum 85+%, in pruritus 85+%, in seborrhea 83+% and in urticaria 85%.

COCAINE IN INDIA. — The Bureau of Commerce and Labor has been informed that the Government of India has prohibited the bringing in of cocaine by means of the post, and has restricted its importation by any other means to cases in which it is imported by persons, or by their authorized agents, who have been especially permitted to import the drug by a local government or administration. The government has also empowered the postal officials to search for any cocaine in course of transmission by post, and to deliver all such to the nearest excise officer. — *Medical Record.*

Boston City Hospital.

CLINICAL MEETING, NOV. 15, 1906.

Dr. Henry Jackson in the chair. Dr. L. R. G. Crandon, Secretary. The following cases were shown.

Dr. William P. Bolles reported

OPERATION FOR HYPERTROPHIED PROSTATE.

M. F., night watchman, aged fifty-nine, but seems older; temperate. He had typhoid fever twenty years ago. Hernia ever since childhood which was well retained by a truss. He has had increasing urinary trouble for one or two years; his first attack of complete retention was a year ago. Six months ago he had a second attack, followed by incontinence for a time. A short time ago he had a third attack and had to be catheterized up to the time of operation. He had a slight systolic cardiac murmur. General condition was very good, however. There was a large and evenly hypertrophied prostate, which was shown by rectal examination to be smooth, rounded and not tender. No stricture.

The patient was operated on one week after entrance by the perineal method of enucleation. Syphon drainage was used for the first two or three days through the perineum. The sphincter of the bladder began to functionate within two or three days more. The packing around the drainage was removed the day after operation. The patient had but little pain from the operation, and sat up in five or six days. He wheeled around the ward in a chair in a little more than a week. He began to urinate partly through the penis in a fortnight and did so almost completely within a week after that time. At the end of four weeks the perineal wound had entirely healed and all the urine was voided through the urethra without pain and in full stream about once in three hours with sphincter control perfect. The patient was discharged relieved. He has returned to-night from his home in the North End to show himself.

DISLOCATION OF CERVICAL VERTEBRÆ.

P. D., aged fifty; single; a farmer. The patient was admitted to the hospital on Oct. 26. Eleven days before his admission was thrown from a team, falling over the wheel and striking on his head. He walked unaided into the hospital and his only symptoms were pain and stiffness in the back of his neck. There was no paralysis of any kind. No deformity was found externally, but the digital examination of the pharynx revealed a prominent bulging forward of the bodies of the middle cervical vertebræ.

He has improved slowly but steadily since his admission to the hospital, gaining motion of his head and the pain is gradually diminishing. He is still in bed, but very comfortable and it is probable that he will be up within a few days.

Dr F. S. Watson reported,

TWO CASES OF PROSTATIC HYPERTROPHY IN WHICH THE PROSTATE WAS REMOVED BY TOTAL PERINEAL PROSTATECTOMY.

These two patients represent the beneficial results of total prostatectomy when it is performed in appropriate cases. Both of them were subjects of chronic retention of urine. Both had very large accumulations of urine retained within the bladder because of the inability of the expulsive power of the bladder to overcome the obstacle offered by an enlarged prostate to the outflow of urine.

In the second case we had a factor present which ordinarily constitutes one of, indeed, the greatest objection to the performance of prostatectomy, namely, a urine which suggested that the kidneys were functionally defective. Under these unfortunately very frequent circumstances, uremia is apt to follow the performance of the operation, and when it does, to prove fatal. On this account it is of great importance to ascertain beforehand the functional capability of the kidneys. Personally speaking, I have found the amount of urea present and the specific gravity of the urine very safe indications of the condition of the renal function and ordinarily sufficient to enable me to estimate the dangers of the operation in any given case so far as this, the most serious of all the post-operative dangers, is concerned.

In this particular instance we disregarded the indications furnished by a low specific gravity and a diminished proportion of urea, of an insufficient renal capability, for the reason that it seemed to me probable that they might be due to the temporary polyuria which so commonly follows the withdrawal of the urine from the bladder in cases of retention with large accumulations of urine in the bladder, and the event shows that we were right to have the courage of our convictions, in this case at any rate.

With regard to the method of operating, there is not much to say. There has been a great deal of to-and-fro discussion and an immense amount of literature with regard to the operative technique of the perineal operations of prostatectomy. I have been connected with the study of the operative treatment longer than any one in this country, was the sole and only surgeon for a good many years to be found who advocated prostatectomy and especially perineal prostatectomy, have seen the recent development of the various techniques of the latter procedure, each and every one, and have practised some of the more important and promising of them, as well as the method that I have employed long before any of them were put in the field; I therefore feel a certain right to pronounce with regard to their claimed merits and demerits, and I say this with regard to the surgical technique of the perineal operations: That it makes not the least difference which of them you employ so far as the safety or danger of the operation is concerned. Whichever one is preferred by any individual surgeon and whichever one of them he is most skilled in performing, that is the one he had best adhere to.

There is, however, something to be said as to the character of the results obtained by them. It is this: That those operations which afford the best chance of avoiding injury to the ejaculatory ducts and the floor of the urethra, which is saying one and the same thing, are to be preferred to those which do not aim at doing this. The question of injury to all other parts

of the prostatic urethra than the floor of it is of secondary importance. It has yet to be shown that any serious harm or even inconvenience comes from tearing through the sides of the prostatic urethra, which is what I do personally in every case of perineal prostatectomy in which I follow the method of operation which I have done for the last eighteen years, though in smaller numbers than has been the case with some other surgeons. The operation to which I refer has the advantage of being the most rapid of all the methods. In the cases we are showing you to-night the time taken was much longer than is sometimes the case. In another case done just before these two I removed the prostate in two minutes and without any more risk to the patient than if I had occupied half an hour. The time taken in these cases was respectively seven and fifteen minutes. It will average about six to eight minutes and is often as short as four minutes.

The method consists in enucleating the prostate lobe by lobe or in one mass as may be preferred, with the finger tip aided, when necessary, by snipping especially tough fibrous connections between the surface of the gland and the inner surface of the outer sheath with blunt scissors.

The finger is passed into an ordinary external perineal urethrotomy incision and into the prostatic urethra. When there, one side and later the opposite side of the prostatic urethra is scratched through with the finger nail or incised with a gum lance passed beside the finger, in either case above the urethral floor and consequently above the entrance of the ejaculatory ducts and above their course through the posterior part of the prostate itself. Through these openings in the sides of the prostatic urethra the finger tip bores until it rests upon the surface of the thin capsula vera covering the gland and forming a part of it. The enucleation is then accomplished by working the finger between this membrane and the inner surface of the outer sheath of the prostate. It is essential that this outer sheath should not be wounded, for in it lie the prostatic plexus of veins which are the source of all the bleeding that ever occurs in the course of this operation or any other way of removing the prostate. Hemorrhage need never occur if care is taken to avoid injuring this structure. Personally, I have never had a hemorrhage of the least consequence in any of these operations of which I have up to the present time done 74, 54 of them being perineal prostatectomies.

One point is well illustrated in these two cases, *viz.*, that the membranous urethra with its compressor urethræ muscle is the true sphincter of the bladder, for in the first case we lacerated the vesical outlet and its sphincter quite extensively — a rare thing to have happen in my experience but an occasional accident. This patient might have been expected to have had incontinence of urine on account of the injury done to that part of the bladder, but he retains his water for two hours at a time already and will gain in this respect as time passes. His membranous urethra is healed except for a short time now and then when it reopens. The other patient has not yet had his urethral incision heal, and he cannot as yet control his urination although he had a perfectly uninjured inner or vesical sphincter at the end of the operation.

The perineal operations have been criticised because of what is asserted to be the greater danger of wounding the rectum when performing them than in the suprapubic method. As a matter of fact the rectum need never to be wounded if only the operator will take the precaution to place two fingers, of the hand not engaged in the enucleation, in it and to press upward against the posterior surface of the prostate whenever the enucleating finger presses downward toward the rectum.

With regard to the advantages and disadvantages of the suprapubic and perineal operations, there would be, practically speaking, very little to choose between them were it not for the one persistent fact that at the very best showing the high operation has an operative mortality of 7.6% and an average one of 11.6% while the best of the series of the perineal operations is but 2% to 4% and an average of 6.5%. The operative mortality of both operations is gradually diminishing.

DR. C. F. WITHINGTON reported the following cases:

A CASE OF MULTIPLE SYMMETRICAL EXOSTOSIS.

The patient, an Italian, a man of about thirty-five years of age, entered on account of acute articular rheumatism. During the routine examination an exostosis of the size of a small egg was noted on the inner aspect of each tibia near the head of the bone. Of these he could give no history, save to say that he had had them since he could remember. Further search showed that similar but smaller growths existed at the head of both fibulæ and the outer malleoli seemed rather large. No exostosis could be made out elsewhere. The accompanying radiographs, which I pass about, show, however, a wider distribution of the anomaly. In the first place, they make very clear the condition in the lower legs. The exostoses are shown to be slightly less dense in structure here than the rest of the bone. Their distribution is perfectly symmetrical, and there are eight of them occupying the ends of the four bones.

Though nothing can be made out by palpation elsewhere, these radiographs show a similar condition to exist in the upper extremity. Here the growths are smaller and more like spicules. They are quite symmetrical and are found on the lower end of both radii. On one radius, besides the hard, dense spicules, there is a less dense and more extended growth than on its fellow. Similar sharp spicules are seen toward the upper end of both humeri, corresponding to the insertion of the pectorales majores. From one such process a slender shadow shows in the picture extending nearly to the inner edge of the arm, as if bone structure was being deposited in the muscle towards its insertion, or as if the process were growing out from the humerus into the muscle. It is possible that other parts of the body which have not been radiographed have also similar osteophytes.

We have not been able to learn from the patient anything about this phenomenon, except

that it appears to give him no trouble; nor have we got any history of heredity. I notice some similar cases are described in the *Bulletin et Mémoires de la Société Medicale des hopitaux de Paris*, 1905, no. 24, p. 647. One patient of twelve years old showed an inheritance of the phenomenon in the direct male line, from father and grandfather; it was shared by a brother of the patient, but the collateral lines, from the father's brothers and sisters, were free. Two other cases recorded in the same place, of eighteen and thirty-five years respectively, showed symmetrical exostosis, chiefly epiphyses. There were no signs of rickets, and the cases were not hereditary.

A CASE OF CHRONIC ULCER OF THE STOMACH, UNRELIEVED BY SEVERAL OPERATIONS.

The patient, a single woman, born in Ireland, aged forty, gives a history of occasionally vomiting blood at varying intervals for six years. There was considerable pain, and an occasional dark-colored stool. Three years ago she vomited about a pint of bright red blood, and about five days later entered this hospital. Operation was advised and refused. She was fed for ten days by enema, then by mouth, and was discharged, as far as symptoms went, well. There was a period of twenty months before recurrence. Then there was hematemesis, and after five months, pain. After the latter had lasted three months, there having been no bleeding for eight months, she entered on the surgical side. She was then operated upon and at one sitting there were done a gastro-enterostomy, an entero-enterostomy, a plication and an appendectomy. Two scars were seen on the surface of the stomach, the pylorus was indurated and the stomach dilated.

Eight weeks after this operation, the patient returned with pain and vomiting, and some bleeding. A second operation, of which you see the scar in the median line, was done, some adhesions were broken up and the omentum was sutured to the site of the plication. The lumen of the gastro-enterostomy was then found to be still patent.

She was discharged in five weeks, and enjoyed a period of exemption from trouble of eleven months. She then began to pass blood from the bowels and occasionally to vomit it. After six weeks of this, she again entered on the medical side and was treated in the usual way for four weeks, till she was discharged free of symptoms. Her exemption after this only lasted three weeks, and she is back again with vomiting of food, not blood, and occasional slight hemorrhage from the bowels. She is again doing well under medical treatment.

So far as concerns the time necessary to secure relief, it seems to make little difference whether she has been treated medically or surgically. The intervals of relief happen to have been a little longer following medical than surgical treatment, except in the last case, though it may well be that the relapses on the whole are getting more frequent. The case is one of those unfortunate ones in which neither medicine nor surgery can lay a very flattering unction to its soul. When first under observation here, because of the persistence of downward bleeding, the ulcer was believed to be duodenal, but at the time of the first operation, gastric cicatrices were seen. It is, of course, possible that the present ulcer is more recent than those, and is duodenal. But the early production of pain after taking food and the similarity of the symptoms to the earlier ones make it probable that the ulcer is at or near the old ones. The operation, by relief of gastrectasis, did seemingly help the vomiting, but at present her generally unpromising outlook appears hardly more gloomy under medical regimen than under further surgical treatment.

DR. F. J. KEANY showed the following cases:

ERYTHEMA GANGRENOSUM (A TROPHO-NEUROSIS).

THIS patient is sixteen years of age and has lived in a rural district until present visit to Boston. This case presented at the Out-Patient Department of the Carney Hospital, and was first seen by Dr. Townsend Thorndike. Subsequently, Dr. Thorndike and I saw the patient at her residence, and advised her entering the hospital. Through the courtesy of Dr. F. H. Williams, on whose service the patient is being treated, we present this case as an interesting and extremely rare dermatosis. As to past history there is nothing to learn beyond her having had scarlet fever, measles and varicella in childhood. There is no specific history.

The present trouble had a sudden onset, the first lesion of the skin appearing on the back of right hand June 16, 1905, and developed in about one-half hour. It is described as a red purplish spot which became hard and later took on the appearance of a blister, and finally sloughed leaving a scar about the size of a silver half dollar. The lesion did not itch, but was painful and of a burning character which lasted until it became indurated.

At varying intervals since, similar lesions have developed on the right forearm and upper arm, right side of neck, right foot, plantar surface, right thigh, right leg, tibial surface, right post-auricular space, and present active lesion is situated in right groin.

These, first erythematous, later gangrenous, patches develop always the same picture and go on to cicatrization leaving scars, some superficial, others fairly deep. The greatest loss of tissue is over the right tibia. The process lasts from four weeks to three months.

Antiseptic and stimulating local treatment has been tried and strychnia internally given. Later, on suggestion of Dr. Bullard, a course of bromides was appealed to, with little, if any, result. Since admission to the City Hospital, radio-therapy under Dr. Williams's care, is promising.

This condition is to be distinguished from eyrthema induratum scrofulosorum, of Bazin's, erythema nodosum and syphilis. In Professor Kaposi's clinic at Vienna, I have seen a case quite similar demonstrated as hysterical gangrene. The age of the patient, the absence of arthritic conditions and suppuration rule out erythema nodosum. The failure of anti-syphilitic treatment and the history rule out syphilis. The distribution of lesions, all confined to the right side of the body, the period of development and the hysterical elements present, lead to the consideration of a tropho-neurosis.

A CASE OF TYPHOID FEVER DEVELOPING A PURPURIC ERUPTION OF THE SKIN.

On invitation of Dr. J. L. Ames, I examined this case and observed on the abdomen, right forearm and lower limbs, from the knees down on anterior surfaces, a bright red erythematous eruption with no subjective symptoms. I expressed the opinion that it was a toxic erythema. Some six or seven days afterwards, I again saw the case and found the eruption had changed to its present character and is, as you now see, purpuric. On pressure, the surface does not pale, the condition is all intensified. In all probability the hemorrhage has only extended to the corium.

Such drugs as belladonna, bromide, copaiba, iodides, capable of producing similar eruptions, have not been employed here. Very exceptionally a purpura may, as in this case, develop in the course of typhoid, measles, malaria, scarlatina, septicemia and specific fevers. Osler suggests that a toxin may be generated, some alkaloid, which in varying dosage, in different constitutions, may produce either an urticaria, angio-neurotic edema, erythema multiforma or purpura.

DR. J. B. BLAKE showed

A SPECIMEN OF SELF MUTILATION IN A PATIENT SUFFERING FROM ALCOHOLIC INSANITY.

It consisted of the penis and testicles removed in one mass. The physician who accompanied the patient to the hospital brought the specimen in his hands. At entrance the vessels of both spermatic cords were picked up and tied, as was also the dorsal artery of the penis. A catheter was introduced into the bladder. Three days later a plastic operation was done, turning down a flap from the abdomen from either side of the middle line, to close in the large denuded area over the pubes; this area was about the size of the palm of an adult's hand. The urethra was split and stitched to margin of the skin on either side to prevent cicatricial contraction. Convalescence was slow, and the patient was transferred to the Boston Insane Hospital, from which he was discharged to friends after two months. At that time the wound had healed completely, and he had perfect control of his vesical sphincter.

DR. F. B. LUND showed cases as follows:

CASE I. PARTIAL GASTRECTOMY FOR CARCINOMA OF THE STOMACH.

A patient was presented who had been operated upon for carcinoma of the stomach seven months ago. He was sixty-two years of age and in poor general condition, being considerably emaciated, able to take but little nourishment and vomiting frequently, the vomitus occasionally containing blood. A palpable tumor extended across the epigastrium, sickle shaped, corresponding to the greater curvature of the stomach. On opening the abdomen the growth was found to involve the pylorus and about one half of the stomach, so that for its removal it was necessary to include between the clamps about two thirds of the stomach.

The operation was performed according to the method of W. J. Mayo, the clamps, cautery and inverting sutures being used upon the stomach and duodenum. At the upper outer margin of the growth on the lesser curvature the clamps were applied fairly close to the growth. Elsewhere there was a wider margin. Several glands in the mesogastrium were enlarged, and required removal. It was impossible to get the end of the duodenum anywhere near the small pouch of stomach which was left, so that the first loop of the jejunum was brought up and attached to the posterior surface of the pouch of stomach which was left, by a Murphy button, re-enforced by four sutures of linen thread. This method was adopted as the most rapid, owing to the debilitated condition of the patient. Very little shock resulted from the operation, the pulse remained full and regular, and the patient vomited only once after the operation. He began to take liquid food at once and improved from the first, having no drawbacks except a stitch abscess in inner part of the abdominal incision. The button was passed in a fortnight. Since leaving the hospital, the patient, Mr. H., has been well, and has taken a sufficiency of nourishment, although he says his stomach will not hold as much as it formerly would, and he takes one or two extra meals a day to make up for the small amount taken at the regular meals. He has worked about his place all summer, and has gained twenty pounds. There is now no evidence of recurrence, but he is being bothered somewhat by a ventral hernia in the lower part of the incision. He expects to come in within a few weeks and have this defect in the abdominal wall repaired.

CASE II. GASTRO-ENTEROSTOMY WITH ENTERO-ENTEROSTOMY FOR ULCER AT THE PYLORUS, FINALLY REQUIRING DIVISION OF THE ASCENDING LOOP.

J. A. Q., aged forty-three, female, had been treated in the medical wards of the hospital at various periods for several years for gastric ulcer, which recurred soon after leaving off treatment and was characterized by frequent bloody vomiting and great loss of strength.

In November, 1905, in the hope of inducing a healing of the ulcer, a gastro-enterostomy was performed. At operation the pylorus was found to be narrowed, indurated and scarred. A posterior gastro-enterostomy was performed by the long loop procedure, and an entero-enterostomy done, at the same time the ascending loop being narrowed by a continuous infolding suture. (Enterorrhaphy.) About two weeks after the operation alarming symptoms set in, — constant vomiting of bile, severe pain and abdominal distention. The abdomen was again opened and it was found that the line of the enterorrhaphy had become adherent to the abdominal wall to the right of the median line and folded over so as to obstruct the descending loop. It was freed and the suture, which had not absorbed, removed. The patient then recovered, left the hospital and during the winter went out to service, but was in poor condition, suffering from epigastric pain and occasional bilious vomiting. During the summer she was again in the medical ward under treatment. She had recently been serving as waitress at the convalescent home of the hospital, and while there was seized with another attack of pain and bilious vomiting. She re-entered the surgical wards, suffering from pain, muscular spasm and constant vomiting. Three weeks ago she was operated on again, and the ascending loop was divided, the ends inverted and closed by suture. Since this operation she has been perfectly comfortable, has improved in weight, color and general condition, has not vomited, and is about to return to the convalescent home.

CASE III. A CASE OF INTRACAPSULAR FRACTURE OF THE NECK OF THE FEMUR TREATED BY FIXING THE FRAGMENTS WITH A WIRE NAIL.

O. K. G., fifty-six years of age, suffered an intracapsular fracture of the neck of the femur, for which he was treated in this hospital in November,

1904. After leaving the hospital he walked with crutches for a time, and later with the aid of a heavy cane, but has never been able to bear his full weight on his right leg, efforts to do this being accompanied by severe pain, together with a slip or grating sound in the hip. Examination showed eversion of the foot, thickening about the trochanter and neck of the femur, crepitus on rotation, and a distinct slip and crepitus on pushing the leg and hip upward. There was a shortening of three quarters of an inch.

Treatment: A wire nail long enough as shown by measurement of the skeleton to transfix the trochanter, neck and head of the femur and acetabulum, was smoothed and polished. Under ether an anterior incision was carried down to the line of fracture and the ends of the bone curetted. Then a second short incision was made over the outer surface of the great trochanter and the nail driven through the trochanter, neck and head of the femur into the pelvis. The x-ray shows the relation of the nail to the bones. A plaster of Paris spica was then applied over the dressing. The patient has been perfectly comfortable. The nail was removed in five and a half weeks by an incision under cocaine anesthesia. It was loosely imbedded at that time and was easily drawn out. The patient ten weeks after the operation was sitting up and beginning to bear weight on the injured limb. There is about three quarters of an inch shortening and some eversion, but union is apparently firm. On Nov. 23, examination shows firm union, and he is bearing more weight on the injured limb.

CASE IV. A CASE OF TALMA'S OPERATION FOR SCIRRHOSIS OF THE LIVER.

J. D., an Italian, fifty-five years of age, with a history of chronic alcoholism, had suffered for the past five weeks from swelling of the abdomen and legs. He had worked up to two weeks ago. Examination showed a slight yellowish tinge of the skin, slight enlargement of the capillaries in the skin at the sides of the abdomen, some dilatation of the superficial veins over the lower part of the chest. Marked distention of the abdomen by free fluid, as shown by shifting dullness. Liver dullness could not be accurately made out.

Under ether the abdomen was opened by a median incision above the umbilicus, and the parietal peritoneum found to be reddened and injected. There was marked dilatation of the capillaries. The veins in the omentum were somewhat dilated and tortuous. The liver was greatly contracted and adherent by loose adhesions to the parietal peritoneum over a large part of its surface. The spleen was enlarged, and likewise adherent to the parietal peritoneum. The peritoneum covering the intestines was everywhere injected. A very large amount of fluid was sponged out of the peritoneal cavity, the surface of the liver where not adherent thoroughly rubbed with dry gauze, and the parietal peritoneum in the lumbar and iliac regions rubbed with gauze in order to irritate it and if possible to secure the formation of adhesions. The peritoneum at either margin of the incision was grasped with hooks and everted, and the omentum sewn to its surface over as wide an area as possible with continuous catgut sutures. The abdominal wound was closed in layers. The patient was perfectly comfortable after the operation, which was performed on Nov. 2. Now (Nov. 15) he is considerably distended and will soon require tapping.

This case promises well on account of the evidence shown by the dilated thoracic veins, the dilatation of the subperitoneal veins, and the adhesions of the spleen and liver, that nature was making some progress toward effecting a cure. We expect to have to tap him several times, but hope that the intervals will grow longer and the amounts of fluid removed less.

DR. JOHN L. AMES reported

A CASE OF POISONING BY NITROBENZOLE.

THE patient is a male, forty-seven years of age. While out walking one afternoon he picked up a pint bottle containing a dark colored fluid and which bore the label "sarsaparilla." He carried it home and the next morning took a drink from the bottle. It burned his throat and made him immediately very ill. When brought to the hospital he appeared to be in very bad shape. He was cyanotic, the blue appearance of skin and mucous membranes being very marked. Surface of the body cold. Temperature, 97°; pulse, 130, weak and irregular; respiration, 30. He was semiconscious, and there was marked prostration. The blood was chocolate colored, very thick and viscid. Venesection was done and a pint of thick, tarry blood withdrawn, and a pint of normal salt solution introduced into the vein in its place.

Stimulants and liquids and oxygen were freely given. He responded well to the treatment and after twelve hours began to improve. At the end of two or three days his cyanosis had entirely disappeared and his blood became normal.

Soon after entrance and just before transfusion his blood showed white corpuscles, 36,500; red corpuscles, 5,816,000. Six hours after transfusion, white corpuscles, 17,200; red corpuscles, 4,360,000. Sixteen hours after transfusion, white corpuscles, 15,600.

Poisoning by nitrobenzole is rare, but the symptoms are similar to those of acetanilid poisoning only they are more intense. The condition of the blood is one of metahemoglobinemia. In this case the urine was negative, except for an increase in the urophene.

DR. H. A. LOTHROP reported the following cases:

CASE I. TROPHIC GANGRENE OF LITTLE FINGER.

THIS patient is a girl about ten years of age. Three weeks before entrance she received an incised wound across the forearm, just below the elbow. The wound was seen shortly by a physician and sutured and healed by first intention. About two and one-half weeks after accident the top of the little finger became discolored and it felt cold and numb. General examination at time of entrance showed that we had to deal with a healthy young girl. There was a recent scar on the forearm below the elbow which crossed the track of the ulnar nerve. The last phalanx of the little finger was ulcerated and the second phalanx was encircled by a bulla. There was numbness of the hand corresponding to the distribution of the ulnar nerve. There was moderate atrophy on the ulnar side of the forearm anteriorly and of the hypothenar eminence. There was no obvious muscular paralysis.

After a few days' stay at the hospital, during which time the condition in the finger was treated, its appearance improved and the gangrene was self-arrested. About one week after entrance a longitudinal incision was made with its center across the scar. The cut ends of the ulnar nerve were readily accessible. There was a moderate bulbous thickening at the lower end of the proximal portion of the nerve. This thickening was excised and the ends of the nerve approximated and held in apposition by fine silk sutures. The wound was closed and the arm put up in a straight splint to avoid tension.

Five weeks after entrance the condition is as follows: The little finger is entirely well. The gangrene became

limited and as a result thereof she has lost the nail of little finger and half of the first phalanx. The muscular atrophy remains as at entrance. The operation wound healed by first intention and there is no discomfort referred to any part of the arm. There is every reason to believe that the function of the ulnar nerve will be re-established eventually.

CASE II. FRACTURE OF SPINAL COLUMN.

This patient, an adult Chinaman, was run into by an automobile, sustaining injury to his back. He was brought to the hospital promptly and examination showed extreme tenderness in the lower dorsal region. At first his injury was supposed to be simply a contusion. Shortly after entrance he began to have sensory and motor symptoms referred to left leg. On the third day he had lost most of the motor power of left leg. The sensation was but little interfered with.

At this time examination of back showed a moderately prominent kyphosis. The diagnosis was obviously a fracture of spinal column at about the eleventh dorsal vertebra. This was further verified by x-ray. For two weeks be was kept on his back on a mattress with no pillows. Fracture slats were passed across under the mattress only at a point corresponding to the kyphosis. At the end of this time all deformity had disappeared and the function of left leg was nearly restored. He was then turned on to his abdomen so as to maintain the corrected position and a plaster of Paris jacket applied extending from hips to shoulders.

Examination six weeks after this plaster was applied shows that the position has remained corrected and there is no apparent deformity. All functions are normal. He is now walking about with his bandage.

DR. L. R. G. CRANDON reported a case of

GENERAL PERITONITIS. OPERATION. RECOVERY.

A BOY of seventeen was admitted after four days' illness; constantly vomiting; pulse, 140; temperature, 103°; abdomen, distended, universally tender and spasmodic, dull in the flanks; tongue, dark and dry,—the complete picture of general peritonitis.

Under ether, a right rectus incision liberated foul-smelling, chicken-broth pus from all parts of the peritoneal cavity. A brief search in the appendix region showed that that was the most probable source of the infection though the appendix was not found. The whole abdominal cavity was washed with twelve quarts of hot salt solution and cigarette gauze drains put through the wound in four directions. The operation took seven minutes.

The patient was discharged healed and well in five weeks.

The noteworthy points in this case are:

First, in the operation no time was wasted in an extended search for the perforated appendix stump or in handling the inflamed intestine.

Second, immense quantities of pus drained out during the first critical days after operation and this important drainage was made possible, I believe, because the patient was kept in the prone position in bed, the wound being then at the bottom of the draining cavity.

DR. DAVID D. SCANNELL reported a

CASE OF URETERAL CALCULUS.

W. H. G., twenty-one, was admitted to the hospital Sept. 30, 1906, with the following history:

Twenty-four hours before, suddenly seized with acute and constant pain in the right lower quadrant of the abdomen. This pain was progressive in intensity and associated with considerable nausea and vomiting. No chills, but moderate fever; bowels had moved regularly, pain not spasmodic and not radiating to scrotum; no blood observed in urine. No previous attack of a similar nature. At the time of admission physical examination was as follows:

Temperature, 101°; pulse, 96; patient did not look sick; tongue, coated; breath, heavy; chest, normal; abdomen, no general distention; marked spasm over whole right abdomen, but most marked in lower half; excessive tenderness over McBurney's point where the involuntary spasm made palpation of deeper parts impossible. The general picture of the patient was strongly suggestive of an acute appendicitis.

Operation: Under ether with the relaxation of spasm, little additional help in palpation could be derived. McBurney incision 1½ inches long; intestines markedly distended; appendix, normal. Exploration to determine the cause of the pain revealed the presence in the right ureter, just above the level of the appendix wound, a hard, fairly sizable stone. This was firmly impacted in the ureter. There was apparently the slightest dilatation of the ureter above this level.

Without enlarging the incision, but stretching to the maximum the abdominal muscles, the general mass of intestines were pushed back and retained with strips. The ureter was grasped, just above the stone, with the thumb and index finger of the left hand and tightly compressed. An incision 1 cm. long was made on the stone, which was with no great difficulty delivered. The calculus was triangular in shape, the base measuring 6 mm. and the sides each 10 mm., the thickness of the cone being about 5 mm. Immediately on delivering the stone the ureter was closed with three very fine silk sutures. Down to this point was placed one sterile gauze strip for possible leakage. The convalescence was normal, the wick being taken out at the end of twenty-four hours, and the wound allowed to close.

DR. GEORGE B. SHATTUCK reported

CEREBRAL TUMOR OF THE RIGHT FRONTAL LOBE.

W. S., a woman, fifty-two years old, and married, entered the Boston City Hospital Nov. 24, 1906.

Her family history showed nothing of importance and she had been well up to about a year before. She then began to show an unusual tendency toward general nervousness and worry. At about the same time her eyesight began to fail. Six months previous to entering the Boston City Hospital she had undergone an operation at the Homeopathic Hospital, in which tubes, ovaries and uterus were removed for fibroid tumor. Four weeks previous to entering the City Hospital she had severe headaches and vomiting after eating. It was also noted that she moved her left arm almost continuously, for which she gave the somewhat unique explanation that she did so "from a sense of loneliness."

On entrance, examination was as follows: She was conscious and rational but her mental processes were slow and her memory defective. The knee jerks were exaggerated and the Babinski phenomenon was present on both sides. The gait was spastic. There was no Kernig or Romberg sign and no disturbance in sensibility to pain. There was also no astereognosis. The speech was slow and slightly indistinct, the pupils were unequal, the right somewhat larger than the left and examination of the fundus showed papillitis in both. There was no edema, and the physical examination was otherwise negative, except that there was a mass the size of an egg in the right iliac fossa.

On the fourteenth day of her residence in the hospital she became unconscious and twitching movements of the left hand and arm developed. The temperature rose, together with the pulse and respiration; there was retraction of the head, and the patient died seventeen days after entrance.

AUTOPSY.

The autopsy, so far as it concerns the head, follows: Scalp is covered by sparse growth of rather short iron gray hair. The layers of scalp are particularly dry and free from congestion. Calvarium is normal. Pacchionian granulations are quite prominent and longitudinal sinus is free from blood. The membranes of brain are apparently normal throughout except that vessels of pia are deeply congested, the venous channels especially being distended with dark blood. There is no subpial edema. On removing brain from skull the portions of cerebellum surrounding medulla show a grooved indentation which is prominent. Consistence of both cerebrum and cerebellum is increased and there is a slight bulging of right cerebral hemisphere in the lateral portions. No focal point of increased consistence can be determined. Vessels at the base are normal. Cerebellum, medulla and cord are normal. The brain is sectioned in layers beginning at the vertex and cutting anteroposteriorly in a horizontal plane. At a point about 2.5 cm. from superior portion of cortex in frontal lobe, the increase in transverse thickness of right half of cerebrum compared with the left is noticeable. At a point 6 cm. from anterior portion of frontal lobe measured along great longitudinal fissure the right lobe of cerebrum is 7 cm. in thickness, the left lobe 5.5 cm. On removing the next layer an oval, fairly firm, encapsulated tumor appears. The long axis of this tumor is in the vertical plane of right cerebral lobe. Tumor is located in white matter of frontal lobe well out toward lateral surface and back toward parietal portion of cerebrum. Transverse diameter of tumor is 4 cm.; anteroposterior diameter 2.5 cm.; vertical diameter 4 cm. Cut surface is made up of two varying kinds of tissue. The inner half, around which the capsule is the thickest, measuring 5 mm., is grayish yellow in color, rubbery in consistence and without evidence of softening or hemorrhage. The outer half, around which capsule is fairly thin, measuring 2 mm., is softer in consistence, grayish in color, mottled with fine hemorrhagic points, and the boundary between it and the capsule is rather indefinitely fixed. A rod driven down through the center of this tumor would appear on inferior surface at the beginning of the fissure of Sylvius opposite the anterior portion of the fourth frontal convolution. The gray matter is apparently not involved at any point. From the center of tumor to median line is 4 cm.; from anterior portion of frontal lobe in median line is 6 cm. The superior surface of tumor is 3.5 cm. below cortex and throughout its extent the tumor is fully 1.5 cm. from lateral portion of cortex. The lateral ventricle on right side is almost obliterated. On left side the lateral ventricle contains a few cubic centimeters of clear fluid. Basal ganglia apparently normal.

Anatomical diagnosis. — Tumor of right frontal lobe of cerebrum. Rapidly growing glioma.

Exact focal diagnosis of tumors of the frontal lobes anterior to the precentral sulcus is always a matter of difficulty. In the foregoing case the diagnosis of intracranial tumor was unquestioned from the symptoms of double optic neuritis, headache and vomiting, together with general mental failure. Until the very end of the disease, however, localizing symptoms were not obtained. The movements of the left arm observed during the first days of her residence in the hospital were of too vague a character to lead to the supposition that they were due to an invasion of the arm area of the motor region. The spasmodic movements observed three days before her death were much more significant, but her condition at that time was such that an operation was unadvisable. In the diagnosis of prefrontal tumors, particularly of the right side, in which speech disturbances do not occur, the most important sign is a failure or disturbance of the higher mental qualities. These the patient showed to some degree, but evidently a definite diagnosis, without symptoms of invasion of the motor area, based on this alone, is at best uncertain, in view of the fact that tumors in other parts of the brain unquestionably produce very marked symptoms of mental defect through general intracranial pressure. The exaggeration of both knee jerks, together with the double Babinski sign, can only be attributed to the generalized pressure which the tumor caused on the motor tracts. Death, when it occurred, was unexpected and in great measure unexplained.

In all cases of brain tumor verified post-mortem the question of operative procedure during life becomes a matter of interest. In this case the subcortical localization of the tumor would have rendered its exact position difficult to ascertain, even after a generous laying bare of the bone surface. In such cases an operation in two stages is frequently useful, as well illustrated by a case reported some years ago by Drs. J. J. Putnam and M. H. Richardson, in which the tumor had extruded as a hernia and was in great part removed to the temporary great relief of the patient.

Medical Progress.

REPORT ON ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D.

LATERAL CURVATURE.

The most important contribution to orthopedic surgery in the past year has been the publication of the wonderfully thorough work of Schulthess,[1] of Zürich, embodying the results of his remarkable work on this deformity. As is well known, the subject of scoliosis has deen one which has been the despair of many orthopedic

surgeons, and the various theories as to etiology and pathology have been followed by equally varied theories as to treatment.

The work of Schulthess is so thorough in its treatment of the subject that it will serve for many years as the standard, leaving further work in many of the important questions in regard to this deformity unnecessary. It is impossible to do justice to this monumental work in a short synopsis of current literature. A few points, however, can be mentioned.

Schulthess has proved definitely that this deformity can be improved by thorough treatment, and the treatment should be directed not simply to the strengthening of certain muscles, but to the correction of the distortion in a thorough and common-sense way, namely, by exerting pressure in such a way as will tend to correct the faulty curve.

His conclusions are that there is no royal road in the treatment of lateral curvature. He says that the attempt of many publications, even from the pen of orthopedic surgeons, which seek to point out simple methods for the correction of this deformity are to be rejected. What the practicing physician should know is the diagnosis and the etiology of scoliosis, but the treatment must be left to persons who are especially trained in this work. The treatment of severe scoliosis demands the resources of charitable institutions, where long-continued treatment can be persisted in. Under these circumstances even severe scoliosis can be improved.

It is to be noted that Schulthess considers that although schools and attitudes in study may be a detrimental factor in lateral curvature, they do not furnish the chief etiological influence.

TREATMENT OF SCOLIOSIS.

Klapp,[2] as is well known, has advised creeping on all fours as an exercise to develop motion in the pelvis and lumbar vertebræ in scoliosis.

A STUDY OF THE EFFECT OF PRESSURE ON THE CURVE AND ROTATION OF THE SPINE.

In order to determine the important question of the value of pressure in the treatment of lateral curvature, Soutter[3] performed 94 experiments upon a five- and a twelve-year old cadaver placed in the sitting, prone and supine positions, the shoulders and pelvis being held by straps.

The conclusions which he was able to deduce are as follows: The spinal column can be rotated by pressure on the ribs. Slight pressure causes flattening with lateral bulging of the ribs; more pressure causes this with a rotation of the spine; increased pressure causes more rotation and bulging of the chest wall anteriorly, also increased flattening and lateral bulging. Pressure on the ribs rotates the spinal column but not the spinous tips to the same extent, as the spine may be markedly rotated and curved while the line of the spinous processes is not curved to a similar extent.

It is impossible to cause rotation without some lateral deviation, and lateral deviation cannot exist without some rotation. In the dorsal region the recumbent position gives more rotation under given pressure than the upright position, but in correction of slight curves the vertical position may be employed advantageously. In correcting rotation where more correction is desired in front, the supine position is the best, but the prone position is better where more correction is desired behind.

Head pull is an advantage where effect on the upper portion of the spinal column is desired. Suspension with the toes touching is effective for both high and low rotation, that is in double curves. A lying position is most advantageous for the maximum correction with a minimum force.

THE TREATMENT OF FAULTY WEIGHT BEARING IN "WEAK" AND "FLAT" FEET.

The writer[4] considers that the exercise treatment of weak feet is much neglected in hospital clinics. He advocates the exercises described by Ellis. In addition to these he recommends a simple foot exerciser, made of a piece of plank a foot square, with a slight depression, acentric, in which the heel rests. Two hooks are placed at appropriate places on the edges. A webbing strap to which a straight hook is sewed is placed above the foot just back of the great toe joint. A wire spring, two or three inches long, is caught by one end of the hook in the plank edge, and by the other to the hook in the webbing strap. By changing the insertion of the spring, resistive foot exercises may be taken in inversion, eversion, dorsal and plantar flexion and curling the toes.

INVESTIGATION OF OSTEOMALACIA.

The writer[5] claims that this affection was little described until Fehling, in 1887, claimed that the affection was curable by castration, and he describes 4 cases of typical osteomalacia which are carefully considered both clinically and pathologically.

Osteomalacia is an affection without fever. The early symptoms which are of importance are tenderness on pressure, especially at the pelvis and at the ribs, isolated paralysis of the ilio-psoas muscles, contraction of the adductors, and an increase of the patella reflexes without loss of sensation. As the affection is essentially a disease of the marrow, it would be supposed that there would be some change noticed in the blood, but this is not the case. Neusser noted an increase of the eosinophile cells, but Fehling found no increase in one case, and in another instead, a decrease, the hemoglobin being normal, and the number of erythrocytes being also normal; the number of leucocytes is variable. Roentgen rays are of little help in the early stages of this affection, though an increase in the size of the marrow may be noticed in some variations of the long bone.

There are two varieties of osteomalacia which are classed as the puerperal and non-puerperal, in that the latter is much more progressive than the first, and the curves in the spinal column and

the sternum are much more marked than in the pelvis. The differential diagnosis in the early stages presents some difficulty, there being pains in the thighs, in the hips and in the pelvis. No enlargement of the epiphyses are seen as in rickets. Osteomalacia is a disease of adults and need not be mistaken for rickets, which is a disease of childhood and of bone which is not yet thoroughly calcified, and osteomalacia is an affection which softens the already calcified bone.

The exaggerated patella reflexes seen in cord affections differ from those found in osteomalacia, as there is no loss of sensation in the latter, and the bladder and rectum are normal. There is no spastic gait. It is difficult to make a diagnosis of osteomalacia from multiple carcinoma of bone, which, although a rare affection, has been occasionally observed.

The course of osteomalacia varies in the puerperal and non-puerperal cases. The mortality may be considered to be 80% if no treatment is undertaken. Under the treatment of phosphorus and by the operation of castration, the prognosis is apparently better. Fehling reported in 13 patients, 84% of cure and 7% of recovery after castration; but in the non-puerperal cases Litzmann reported only 4 out of 46 who were improved. Puerperal cases, according to Litzmann, showed a higher mortality; 18% were improved, and 21% died. Infantile osteomalacia is occasionally observed and is considered to be fatal. The disease is one which may continue for several years before it comes to an arrest, and deformities are slowly developed.

THE ROSER-NÉLATON LINE.

Roser [6] in 1846 first described a line passing between the tuberosity of the ischium and the anterior superior spine and passing above the trochanter. Nélaton independently of Roser described the same anatomical relation, and stated that if the femur is bent at a right angle with slight adduction, the top of the greater trochanter touches a line passing from the anterior superior spine to the most prominent part of the tuberosity of the ischium. Any deviation from this line may be considered an anomaly. Certain deviations, however, would be observed according to the position of the femur, as in abduction the trochanter is buried more in the soft parts and is more prominent in adduction.

Various writers have made observations in regard to the accuracy of this line. Hoffa mentions that a marked flexion of the thigh is necessary, and authors are not in accord how far the thigh should be flexed. The writer has made a number of experiments upon cadavers and finds that it is essential that the patella and the foot should point directly forward, the thigh should be at an angle of 135°, and at the middle point between abduction and adduction.

Experiments on the cadaver show, however, a variation of from ½ to 1 cm. in different cadavers. This may be considered the error of the method. If, as Nélaton described, the thigh is bent at right angles it is necessary that there should be slight adduction and slight rotation outwards. Experiments on the cadavers showed that anatomical variations existed in this position. For extreme accuracy the writer advises marking the skin over the crest of the ilium, and also over the trochanter, with a skin pencil, and with the patient lying on his face measuring the distance between. This is especially useful in congenital dislocation of the hip.

OSSEOUS FORMATIONS IN AND ABOUT MUSCLES DUE TO INJURY. (TRAUMATIC MYOSITIS OSSIFICANS.)

Jones and Morgan [7] report a number of personal cases of bony formations in the neighborhood of joints, chiefly the elbow, following injuries, and they have collected nearly one hundred cases in the literature, and give excellent radiograms of the condition. Operative treatment is advised.

MYOSITIS OSSIFICANS.

A case [8] is reported following a kick on the vastus externus, which resulted in a hematoma, and afterwards the development of bone. The deformity was sufficient to limit the motion at the knee. The mass was found partly cartilaginous, partly fibrous and showed a cyst.

THE PATHOLOGY OF CONGENITAL TORTICOLLIS.

The writers [9] are inclined to believe that the deformity may result from an ischemia of the sternocleidomastoid, and they claim to have demonstrated by experiments that this is possible. If torticollis in a young infant is examined, an abundant infiltration of small round cells around the vessels is to be found, indicating a stage of evolution. In the old cases, marked interstitial myostitis is seen, but round cells are not found. According to the ischemic theory the deformity may develop itself in intra-uterine life.

THE PRESENT CONDITION OF THE KNOWLEDGE OF MUSCULAR TORTICOLLIS.

The article [10] is a collection of references giving a review of the present knowledge of muscular torticollis, considering the etiology of the affection from all the different theories. The conclusions are that the intra-uterine origin of the affection has been demonstrated by clinical evidence and pathological specimens, but the torticollis may also be developed by difficulty occurring at birth, resulting not only from an injury to the muscle, but also from hematoma following bacterial infection of the muscle. From this it follows that there are certain varieties in torticollis according as the contracture arises from a shortening in the skin, in the muscle, in the articulation and in the nerves.

The clinical symptoms also vary in a measure.

The treatment may consist of massage and orthopedic treatment, subcutaneous myotomy, stretching of the muscles, open incision, resection of the muscles and plastic surgery of the muscles. The treatment should vary according to the age of the affection and the amount of the muscular change. In early and light cases massage may be sufficient. If this does not succeed, then

open incision, not only of the shortened muscles but of all contracted tissues, is the normal method treatment, and careful after-treatment must follow. In severe cases, and if relapses occur, a partial extirpation of the sternocleidomastoid muscle, with plastic surgery of the muscles is necessary.

In spastic torticollis operation may be tried after the failure of electricity, orthopedic treatment and the use of bromides.

THE TREATMENT OF TUBERCULOUS FISTULÆ BY SUCTION CUPS.

The writer [11] found no unusual results in old cases, but in fresh cases the cure from within out appeared much quicker after suction than by other methods.

CURE OF CONGENITAL PSEUDO-ARTHROSIS OF THE TIBIA BY MEANS OF PERIOSTEAL TRANSPLANTATION.

The method recommended by Codivilla [12] is as follows: The soft tissues are stripped from the affected region, or the pseudo-arthrosis is removed *en masse* by a chisel or saw, the periosteum being stripped from the bony extremities, the tibial surface having been laid bare by a skin incision. The primary periosteal fold is divided by incisions which can serve as flaps surrounding the two refreshed tibial edges, covering them 2 or 3 cm. above and below their extremities. These periosteal flaps should be freed in such a way as to retain some of their bony surfaces, and are applied around the tibia like the staves of a barrel. Two sutures of the silk, or silk-worm gut, one above and the other below, are fixed to the edges. The operation is more promising if performed on growing bone.

TUBERCULOSIS OF THE SACRO-ILIAC JOINT.[13]

Acute and chronic inflammations of this joint are not common, due to the fact that the joint has very slight movement. Of the chronic processes, tuberculosis is the most frequent, occurring chiefly between twenty and forty.

The chief symptom is pain either over the joint, or radiating to distant parts, as the abdomen, hip or knee. It should be distinguished from lumbago and sciatica. A slight limp is common. Abscesses may point inside or outside the pelvis. The prognosis is favorable in the dry form of caries.

The treatment is conservative or operative. Of 94 cases in the literature, 36 were cured, 18 improved and 29 died. Various methods of operation have been advised, early interference being resorted to where conservative treatment fails.

POLYARTHRITIS CHRONICA DEFORMANS.

This is the name given by the writer [14] to the affection formerly called rheumatoid arthritis, arthritis deformans, etc., the difference in term being considered by the writer due to the different stages of this affection. The pathology and clinical history are well given with many instructive x-rays and photographs. Muscular atrophy, especially of the smaller hand muscles, he considers as a frequent phenomenon.

DISLOCATION OF THE FIFTH LUMBAR VERTEBRA UPON THE SACRUM.

A verified case of this rare deformity is reported by the writer,[15] referred to by Hirschberg and Reidinger, the latter without the verification of an x-ray. The case was of a man twenty years of age, who received an injury from the falling of a desk upon him. The motion of the spinal column was free, there was slight rigidity in the lower portion, the feet were held in the valgus position, the gait resembled that seen in tabes. X-rays showed a variation of one quarter of an inch of the fifth lumbar spine towards the right. Dislocation of the sacro-iliac synchondrosis was not found.

THE INJECTION OF OXYGEN INTO THE JOINTS AND SOFT PARTS FOR RADIOLOGICAL DIAGNOSTIC PURPOSES.[16]

The injection of oxygen makes it possible in radiograms to bring into prominence portions of the soft parts which are not visible. In this way the different layers in the knee joint can be differentiated, — the cartilage, the menisci, the cruciform ligaments, etc. In this way certain types of chronic arthritis may be recognized, and an early diagnosis of tuberculous joints be made possible. The usual surgical precautions are necessary in the introduction of the needle. Chemically pure oxygen is to be used, and care in the avoidance of the injection of too great an amount of oxygen.

Hoffa [17] confirms the use of hydrogen in diagnostic radiography. The method is simple and without danger. In this way injuries to the meniscus, loose bodies and chronic and tuberculous affections of the joint can be recognized.

CHECK OF GROWTH FROM THE X-RAYS.

Försterling, [18] in a number of experiments on animals, found a marked limitation in growth in the exposed portion of the body following short exposure to the x-ray. The older the child the less the influence of the x-ray was noted. For this reason the author advises that the use of x-rays in young children should be limited.

OSTEOMYELITIS AFTER MEASLES.

The changes in the radiograms in a case of a child of thirteen years of age, with osteomyelitis of the metatarsus following measles, were an enlargement of marrow at a cost of bone structure. In the lower portion of the diaphysis a cavity with thin walls communicated with the marrow, similar to what is seen in a spina ventosa, suggesting a mixed infection of a tuberculous and acute infection.

The writer [19] concludes that the marrow may be affected after measles.

COMPOSITE X-RAYS.

The writer [20] advises the placing of the negative and diapositive in radiograms, the glass side to the glass side, with a slight irregularity in apposition. A plastic effect follows, and if the new plate is laid over the negative of both plates,

the result can be copied. This gives, according to the writer, in certain affections two or three means of diagnosis, especially in bone tuberculosis, where the sharp contrasts of diseased bone are not marked, the result of the procedure emphasizing the distinction, but the method is of no use in recognizing foreign bodies.

INTRAMUSCULAR NERVES AND THEIR RELATION TO TENDON TRANSPLANTATION.

The courses of the nerves in their relations to muscles have not been sufficiently well known to be of practical use in tendon transference. The writer [21] has examined this matter not only anatomically, but also with experiments upon animals, and he concludes that the split portions of the muscles should not be too small, that the split portion should not reach farther than to the middle of the belly of the muscle, and that thin muscular strips should only be used from such muscles as are supplied with nerves running along the length of the muscle.

TENDON TRANSPLANTATION.

Lorenz [22] considers that the Nicoladoni transplantation is irrational, inasmuch as it is liable to destroy the proper relation between the antagonist muscle and the afflicted muscles, and in this way a new deformity is developed. This is especially true in calcaneovalgus, which in the Nicoladoni method would develop a varus in a slight calcaneovalgus.

Lorenz advises the development of a flat-foot position, but in severe forms he advises first the correction of the cavus by tenotomy and by section of the plantar fascia freeing of the tendo-Achillis as far as the muscular belly, incision of a portion of the oscalcis, and the periosteal fixation of the divided tendo-Achillis on to the tibia and fibula.

The danger of the development of a subsequent deformity is more important in spastic paralysis than in paralytic deformity, and it is especially important that too great power should not be given to the antagonist muscles.

Great care should be employed in paralytic deformities at the knee, and for this reason Lorenz opposes the transference of the whole of the hamstring muscles in paralysis of the quadriceps, only the semitendinosus with the sartorius and the gracilis and the tensor vaginæ femoris should be transferred. Correction of the deformity and tenotomy of the hamstrings is essential. If simple paralysis of the quadriceps is present transplantation is absolutely unnecessary.

Development of a weak muscle, if the deformity is corrected and the limb properly used, is not infrequent. In paralytic flat foot there is but one indication for an operation, and that is when the completely paralyzed supinators can be supplanted by a powerful extensor, and in addition a portion of the tendo-Achillis can be inserted into the tibialis posticus. In congenital club foot Lorenz sees no indication for transplantation. The essential in paralytic foot deformities is the correction.

THE USE OF SILK IN TENDON TRANSFERENCE.

Lange, of Munich, who has been active in introducing the use of silk strands in tendon transplantation, has made a number of experiments to prevent the irritation and the development of abscesses. Suppuration follows the operation from imperfect asepsis and from direct irritation of the silk strands, and Lange has found that suppuration is more likely to follow if silk sterilized in steam is used, while it is not observed in silk which has been boiled in a solution of sublimate. An explanation of this phenomenon is offered by Frey.[23]

Lange claims that the bacteria in the blood find in silk a favorable soil for development, and endeavors through the use of antiseptic silk, especially silk soaked in sublimate, to avoid this difficulty. It is manifest that foreign bodies buried in tissue are of two classes, — those which are compact and are not permeable by fluids and those which not, being compact act as a sponge, and absorb a certain amount of fluid. The silk strands are of this latter character, and the tissue fluids remain in the meshes separated from the ordinary currents of the animal tissues and the resultant chemical changes. It is the opinion of Lange that the sublimate in the silk acts during the critical period, and aids the natural immunizing force of the tissues.

As to boiling and the chemical changes in the sublimate solution, it is necessary to prove that small quantities of sublimate or of mercury remain after boiling, in the tissues. The writer is of the opinion that in spite of the chemical change which takes place in boiling, that the quicksilver has an anti-bacterial effect, and this he bases on culture experiments as well as on experiments on animals. Silk exposed to the sublimate solution apparently in experiments on animals caused irritation, but in silk where the sublimate solution has been washed away, freed from suppuration, the conclusions which the writer comes to are as follows: In sterilizing silk through boiling with sublimate solution, the mercury of the sublimate enters into some chemical relation with the silk. Outside of the body it has no antiseptic effect; in the body, however, there is probably some antiseptic influence. The change of the mercury in the body is extremely slow, and some traces may be found in the silk two years after the introduction of the silk into the body.

Experiments prove that the healing with sublimate-boiled silk is much more perfect than with a clean silk. Simple boiled silk heals without secretion, provided it is covered with a connective tissue capsule. The irritation of the corrosive sublimate gives rise to a secretion, owing to the irritation, and this irritation causes a development of connective tissue around the silk which strengthens the resulting tendon.

INDICATIONS OF TENDON TRANSPLANTATION.

The article is a defense from the attack of Professor Lorenz. The writer [24] opposes Lorenz's

idea that the transplantation should follow a month interval after the correction, in a second sitting. This, Vulpius thinks, is a loss of time except in cases of very marked deformity which has persisted for a long time. If there is paralysis without deformity, which has persisted for ten months, he considers the operation indicated. The limitation of the transplantation to spastic paralysis, and the use of tenotomy in the strong muscular group on the concave side, is not accepted by Vulpius, as he regards tenotomy as not so harmless a procedure. The transplantation of the hamstrings on to the quadriceps in deformity after white swelling has been found of use in Vulpius's hands.

He also opposes Lorenz's statement as to the danger of genu recurvatum after transference of hamstrings, and cites fifty cases operated upon by him without such a deformity. Even if it occurs, he considers the gait in genu recurvatum better than that in genu flexum.

TREATMENT OF PARALYTIC LUXATION OF THE HIP BY ARTHRODESIS.

The writer [25] reports six cases where the joints were opened and the cartilage removed from the head of the femur and the ascetabulum, with partial removal of the synovial and ligamentum teres. The joint was washed out with strong carbolic acid, followed later by phenol and alcohol and salt solution. The limb was put in a slight abduction with outward rotation, and fixed for six weeks; healing by first intention, followed in all cases with a shortening of from 2 to 3 cm.

DEFORMITIES OF THE RIBS AND THE RESULTING CONGENITAL HIGH POSITION OF THE SHOULDER BLADE.

After a thorough study of the literature, the writer [26] comes to the conclusion that no one cause but several may develop the abnormal high position of the shoulder blade. Typical anomalies of the ribs and muscles, bony union between the shoulder blade and the neck, simple muscle defects are all factors which may each cause this deformity.

CONGENITAL LUXATION OF THE KNEE. [27]

The origin of this affection is invariably intra-uterine position, although this theoretical explanation is not easily verified in the statistics of 137 cases. Operative interference is advised if other methods fail. Osteoclasis and forcible correction are rejected, but shortening of the capsule, recommended by Kocher, is advised.

A CASE OF TENDINO-FASCIATO CALCAREA RHEUMATICA. [28]

The autopsy was in the case of a previously healthy woman, who suddenly became ill with fever and general joint affections, especially of the hands, feet and knee. Foreign bodies were found under the skin after the subsidence of the welling, with pains of joints with improvements and, finally, death after two years' confinement to the bed. Multiple deposits of carbonate and deposits of lime were found in the tendon and aponeurosis over the bone.

ABNORMALITIES OF POSTURE IN HYSTERIA. [29]

A variety of peculiarities of the trunk is observed in hysterical scoliosis. A side position or peculiarity in holding of the hip is more common than a kyphosis deviation in hysteria, though a few undoubted cases of the latter are to be seen. The characteristic of hysterical kyphosis is the immediate development after an injury, the patient appearing as if bent double. The position of the kyphosis is usually in the lumbar region, but may be in that of the neck. The reflexes vary. The deformity is developed from either a contracture or a paresis of certain muscle groups. In hysterical scoliosis the erector muscles of the back are chiefly affected, but in hysterical kyphosis, the psoas and iliacus may be.

CINEPLASTIC AMPUTATIONS OF THE UPPER EXTREMITY.

This novel procedure has been performed by Ceci, of Pisa, following a suggestion by Vanghetti. It is well known that the artificial limb furnished for an amputation of the upper extremity is more ornamental than useful. In order to use the muscles in such a way that some motion can be given to an artificial limb, the writer [30] has saved the tendons of certain of the muscles in the upper extremity, and folding them upon themselves, has secured a loop which, lying protected by the skin flap, is capable of some motion by muscular contraction. A metal ring, like a large earring, is secured within this loop, passing out and beyond the stump; to this a cord can be attached, which can be fastened to the necessary portions of an artificial limb, and voluntary flexions at the elbow joint, and a grasp of the artificial fingers and thumb can be secured, enabling the patient with the artificial limb to execute certain important movements.

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Reports of Societies.

THE MASSACHUSETTS MEDICAL SOCIETY.

COUNCILLORS' MEETING.

A MEETING was held at the Medical Library, Boston, on Wednesday, Feb. 6, 1907.

The meeting was called to order at 12 noon, by the President, Dr. George W. Gay; 86 councillors were present.

Delegates were appointed to medical societies as follows:

American Medical Association, 1907 and 1908: C. H. Cook, of Natick; R. H. Seelye, of Springfield, R. C. Cabot of Boston.

Alternates.—P. P. Comey, of Worcester, C. H. Richardson, of Pittsfield, C. A. Porter, of Boston.

Maine — Harold Williams, of Boston; B. R. Symonds, of Salem. New Hampshire — W. E. Faulkner, of Boston; J. V. Meigs, of Lowell. Rhode Island — S. B. Woodward, of Worcester; F. J. Cotton, of Boston. Connecticut — G. W. W. Brewster, of Boston; L. H. Plimpton, of Norwood. New Jersey — J. H. McCollom; J. B. Blake, of Boston.

The following were appointed a committee to audit the treasurer's accounts: E. A. Locke, H. W. White.

Beverly MacMonagle, M.D., of San Francisco, Cal., was elected to honorary membership in the society.

The Committee on State and National Legislation through its secretary, Dr. Sears, made an informal report, to the effect that the auxiliary committee had been appointed to assist in shaping or guiding legislation in appropriate cases this winter. The councillors were urged to use their personal influence in favor of judicious legislation in relation to matters affecting public health by seeing their respective senators and representatives, and explaining the most desirable course on these questions.

Among the important bills which will come up for consideration is one by Dr. Charles Harrington, asking that certificates of unfitness for vaccination be granted only by physicians who are school examiners. The object of this measure is to avoid those physicians who think *no* child is fit to be vaccinated.

Another important matter of legislation asked for is a change in the medical registration law, allowing the board to examine those only who have diplomas from a recognized medical school.

Dr. Harvey for the committee appointed at the last meeting to re-draft the existing by-laws reported a proposed code for the consideration of the councillors and requested suggestions from them with the view of a subsequent report at the annual meeting of the council and society. The code was considered by sections *seriatim* and various suggestions were made. On the question of changing the proportion of councillors to the membership of the district societies it was decided that a letter be sent to the district societies requesting an expression of opinion on this matter. The committee recommended that the ratio be changed from 1 in 12, as now, to 1 in 20, and it was stated that for many years previous to 1895, the proportion of councillors to the membership of their respective districts was 1 in 8. The council had in 1895 226 members. In that year the proportion was changed to 1 in 12, which reduced the membership to about 150. Now it has risen to 235, and within a year or two will reach 250 if the present rule obtains. If made 1 in 20 the membership would be reduced to about 150. Adjourned at 2 P.M.

Book Reviews.

The Harvey Lectures. Delivered under the auspices of The Harvey Society of New York. Illustrated. Philadelphia and London: J. B. Lippincott Company. 1906.

These lectures for the year 1905–6 have been collected into a single volume, attractively bound and well illustrated. The following men lectured during the course: Prof. Hans Meyer, Prof. Carl von Noorden, Prof. Frederick G. Novy, Dr. P. A. Levene, Prof. W. H. Park, Prof. Lewellys F. Barker, Prof. Frederick S. Lee, Prof. Lafayette B. Mendel, Prof. T. H. Morgan, Prof. Charles S. Minot, Prof. J. Clarence Webster, Prof. Theobald Smith and Prof. W. H. Howell. The object of these lectures is to present in a broad way, from the laboratory standpoint, matters which are exciting general medical interest. The lecturers are chosen because of their first hand knowledge of the subjects of which they treat. Narcosis, problems of metabolism, the neurones, the formation of uric acid, the nature and cause of old age, the cause of the heart beat, are some of the topics discussed. The book is eminently readable and presents an admirable résumé from authoritative sources of our present knowledge of many topics.

L'Ame et le système nerveux: hygiène et pathologie. By AUGUST FOREL, formerly Professor of Psychiatry at the University of Zurich. 8vo. Pp. 334, with 10 illustrations. Paris: G. Steinheil. 1906.

The present volume is an attempt to treat, in a popular form, the great question of the hygiene of the nervous system, certainly one of the most important matters in the domain of our social economy. In his presentation of the subject, however, the author has very wisely decided first to give a brief account of the anatomy and physiology of the nervous system, and of the chief functions of the mind, and then to discuss somewhat at length the great principles of nervous pathology and the etiology of nervous disease. In this way the reader comes to the section especially devoted to hygiene, with a clear conception of the nervous system and its functions and of the various factors which may exert a deleterious influence upon it. Although a popular presentation of the subject, the volume is one which may be read with enjoyment and profit,

even by the neurologist, for the writer has brought forward many new theories in regard to nervous function which will well repay study. Although his account of the nervous system is brief it is remarkably complete. With some of his opinions we may differ, notably the extreme importance which he ascribes to alcohol in the production of nervous disease, yet his opinions always deserve attention. Of especial value are the references he gives to various social organizations for the promotion of social reform and to the various methods of education. We can heartily recommend the book both to the physician and the layman.

Tumours of the Cerebrum: Their Focal Diagnosis and Surgical Treatment. By CHARLES K. MILLS, M.D., CHARLES H. FRAZIER, M.D., WILLIAM G. SPILLER, M.D., GEORGE E. DE SCHWEINITZ, M.D., and THEODORE H. WEISENBURG, M.D. Small 8vo. Pp. vi, 285, with 33 illustrations. Philadelphia: On sale by Edward Pennock. 1906.

This volume is made up of seven papers which have been published for the most part in the University of Pennsylvania *Medical Bulletin*, and have now been collected in this convenient form. Of these papers those by Frazier and Spiller on operations for tumor and cerebral decompression are, perhaps, of the greatest interest as reporting several favorable results of operation. Mills contributes three articles on focal diagnosis, Jacksonian epilepsy and the motor area of the cerebrum, in which he elaborates his theories upon localization in the cerebral cortex, and gives some rather inconclusive results of faradization of the motor area. De Schweinitz contributes a paper on the ocular symptoms of tumor and Weisenberg one on conjugate deviation of the head and eyes. The articles are already, no doubt, familiar to many, but every student of cerebral tumors will be glad to have them in this convenient form.

Modern Surgical Technique in Its Relation to Operations and Wound Treatment. By C. YELVERTON PEARSON, M.D., M.Ch., F.R.C.S., Professor of Surgery, Queen's College, Cork; Fellow and Examiner in Surgery, Royal University of Ireland; Surgeon to the North Charitable Infirmary and County and City of Cork General Hospital, etc. Illustrated with two colored and other plates and one hundred and eleven illustrations in text. New York: William Wood & Co. 1906.

This book is primarily intended for students, house officers and surgical assistants. The subject is dealt with in chapters upon surgical bacteriology, infection, disinfection, antiseptics, disinfection of the hands, the use of gloves and operating costume, preparation of the patient's skin and mucous membranes, the preparation and sterilization of instruments, preparation and sterilization of sponges, preparation and sterilization of ligature and suture materials, the nature and mode of sterilization of absorbent dressings, antiseptic dressings, the sterilization of water. In the third and fourth parts of the book are considered: Wounds, their nature and treatment; the prevention and arrest of hemorrhage; suture needles and their uses; sutures, their varieties and uses; drainage materials and their uses; the operating room; preparatory measures; the operation; treatment after operations; the renewal of dressings; operations in private houses, and asepsis in general practice.

The book is fairly well illustrated. We do not think that the author's technique is one to be copied. The day has gone by when marine sponges are used by an operating surgeon for any other purpose than to clean away filth. There are many books that present better modern surgical technique.

High Frequency Currents: Their Production, Physical Properties, Physiological Effects and Therapeutical Uses. By H. EVELYN CROOK, M.D. 8vo. Pp. x, 206, with 44 illustrations. New York: William Wood & Co. 1906.

This well printed volume gives a clear and fairly satisfactory account of the method of production of high frequency currents and their physical properties, with a description of the various forms of apparatus and the methods of use. The second part deals with the physiological effects of these currents, and the third part with their therapeutical uses. These chapters are but compilations from the literature, and the writer presents no personal observations. The therapeutic value of high frequency currents is claimed in connection with all manner of diseases, but the evidence does not seem sufficient, either from the recorded cases or from personal experience, to warrant the claims that are sometimes made for this as for other forms of electricity. The book will prove useful, however, to those who wish to become familiar with this method of employing electricity in medicine.

Nature, Causes, Variety and Treatment of Bodily Deformities. By E. J. CHANCE, F.R.C.S., England. Edited by JOHN POLAND, F.R.C.S. Second edition. London: Smith & Elder.

This work has an historical value indicating as it does the views of a former London practitioner who, connected with the Royal Orthopedic Hospital in 1851 and many subsequent years, embodied his generalizations, from the large number of cases which passed under his view, in twelve public lectures given in obedience to the mandates of a founder's bequest.

Mr. Chance took his subject seriously and illustrated it with original sketches which in our day of half-tones appear unusual. The lectures have an academic character which is refreshing, and if the treatment of the subject is neither original, exhaustive nor new the resulting book is modestly small and has the merit that it is not exhausting.

The second edition has been prepared by a colleague of Mr. Chance as a tribute to his memory.

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BILLS BEFORE THE MASSACHUSETTS LEGISLATURE.

The number of bills relating more or less definitely to medicine and medical questions is this year much as heretofore. Certain petitions invariably are presented for new legislation or for modifications of laws which already exist, and this year is no exception to this general rule.

Tuberculosis has of late been so well covered through legal enactment that little legislation is asked for the future. House Bill No. 234, however, desires to increase the stringency of regulations regarding the registration of cases of tuberculosis. It is proposed that it be mandatory on boards of health and selectmen of towns to register in a book all cases of tuberculosis, giving the name and address of the patient, as well as of the physician who reports the case. The bill further provides for the distribution of suitable publications on the disinfection of premises and for such publicity as considerations for the general public health demand. The bill in general is carefully drawn up and should receive the approval of those interested in the combat against tuberculosis.

A practical bill is one requiring that a medical and surgical chest containing surgical supplies, instruments and appliances be maintained in factories and similar establishments for the treatment of persons injured or taken ill upon the premises. Such a bill would seem to have no objections and many practical advantages. As a means of prophylaxis and as a measure of cleanliness another bill provides that no wall paper shall be placed on walls of dwelling houses until the old paper is removed and the wall or ceiling thoroughly cleansed. The general excitement at the present time regarding hydrophobia should lend a certain weight to a bill directed to the better protection of the public in respect to unrestrained dogs. The suggestion is made that the various boards of county commissioners appoint a dog officer to exercise supervision within limits over unrestrained and unmuzzled dogs.

A bill which will surely meet with the unqualified approval of the medical profession and others interested in modern medical prophylaxis is that relative to the exemption of persons from compulsory vaccination. This bill is a revision of a law which demands that a regular practising physician shall sign certificates when it is claimed that individuals are not fit subjects for vaccination. The amendment substitutes for a regular practising physician, the words, "the school physician assigned to that school." This change, it is hoped, will obviate a certain evasion of the vaccination law which has hitherto prevailed. The school physician must at the time of giving the certificate have examined the child personally and given as his opinion that the child is an unfit subject for vaccination, if such child is to be exempt from the law. This bill is presented by Dr. Charles Harrington.

Another matter of much present public interest is the question of the milk supply and its standardization. At least three bills are offered looking to legislation to establish a definite milk standard. It is evident that this question is one difficult of solution, but it is equally clear that efforts must not be relaxed until the public can be reasonably sure of the quality of its milk supply, and the dealers in milk are forced to a recognition of their duties in the matter. Bills which assist the solution of this problem should receive hearty indorsement from all classes in the community. Dr. R. C. Cabot and others petition for further legislation relating to the labelling of certain patent or proprietary drugs and foods. This bill likewise should meet with approval.

A stricter oversight upon those practising the trade of barber is urged in Senate Bill No. 25, which provides that barbers must obtain a certificate of registration before they may legally prosecute their occupation. The details of this bill, which are included in fourteen sections, provide a detailed investigation into the methods of the occupation and the precautions which should be taken to prevent the spread of disease. In this connection the report of the State Board of Health, submitted by Dr. Charles Harrington, on the investigation of the sanitary conditions of

barber shops is of interest. Although various degrees of cleanliness were found, relatively few flagrant conditions were discovered. Investigation, for example, yielded no direct evidence of a transference of disease from person to person in the barber shop, although it demonstrated the existence of channels through which infection might easily pass. Strict personal cleanliness and the scalding of shaving utensils before use are recommended. In general, the conclusion was reached that special legislation providing for regulation or inspection of barber shops, other than is already afforded through the agency of local boards of health, is at present not necessary.

Finally, a bill which might seem to have a certain justification was offered, for the establishment of a board of registration in chiropody. It did not, however, appear to the committee that there was necessity for legislation in this matter at the present time and the petitioners were given leave to withdraw. No doubt registration, as many other things which are inherently good, may be overdone. Several familiar bills we miss this year. They will, no doubt, appear again either in their old form or modified in such a way as to make a deeper impression in the future than they have in the past upon the legislators to whom they are primarily presented.

RELATION OF MEDICINE TO DENTISTRY.

THE question is a perennial one as to the practical and theoretical relationship between the professions of medicine and dentistry. It has for many years not been questioned that dental practice is a very essential factor in modern civilization, and it is also not to be doubted that the United States has done much toward establishing a higher standard of dental practice, not only in this country, but also on the continent of Europe and in even more remote regions. The very fact of the phenomenal development of dentistry has led to certain unfortunate consequences in its relation to medicine. For example, the independence of the dental school was early established. It quickly became evident that the training of a dental practitioner must be of so special a character that his course of study, except in its elements, of necessity must early diverge from that of the student of medicine. This separation of medicine and dentistry was both fortunate and unfortunate, — fortunate in that it established the dental profession on an independent basis and no doubt trained men more adequately in consequence; unfortunate in that it separated dentistry from medicine in a way which the allied character of the two lines of work does not justify.

The question constantly arises whether dentistry is properly to be regarded as a branch of medicine or as a wholly independent subject. Speaking from the broad point of view, our answer must inevitably be that dentistry must be regarded as a special department of medicine, so far specialized, however, that the medical practitioner has come to ignore it in his own training. The past few years have given some evidence that the breach which has unfortunately been established is about to be bridged. It is increasingly apparent that medicine owes much to dentistry and that a proper appreciation of certain conditions of disease demands far more knowledge of the mouth cavity than the ordinary practitioner possesses. We may refer in this connection to certain bacterial conditions in the mouth and notably to the intractable disease, trigeminal neuralgia, wherein the dentist and the physician must often unite in treatment. It should also not be forgotten that the dental profession is providing year by year scientific observations of great and permanent value. All this the medical profession should recognize. On the other hand, it will still less be questioned that dentistry owes much to medicine and that, in fact, its existence would hardly be possible were it not founded on the broader conceptions of disease which medicine at large provides.

It is extremely desirable at the present time for us to recognize the intimate relationships between the different branches of medical practice, and one of these recognitions should be that dentistry is an integral part of medicine and should be so considered by medical practitioners. The relationship between the two professions or between the two branches of a common profession should be made closer as time goes on rather than more widely separated. To accomplish this end dental schools connected with universities should be liberally and cordially supported by allied branches of science. It should be recognized that the removal of the dental department from a university is a loss not only to the department of dentistry, but very distinctly also to the department of medicine. The exact relationship which these two departments, medicine and dentistry, should bear to each other in any university system is a matter of detail, but that in the present state of science the relations should be cordial and friendly is not for a moment to be questioned.

MEDICAL RESEARCH IN THE FEDERATED MALAY STATES. BERI-BERI.

At the present time diseases of the tropics are being very widely investigated, either through expeditions sent out from medical centers in the temperate zone or through permanent institutes established within the tropics. By both means a great stimulus has been given to the medical profession of the tropics, and the combined efforts of these various agencies have already resulted in numerous additions to medical knowledge. This knowledge is of a two-fold importance to us: Commerce and colonization are bringing our country more and more in contact with tropical disease, and facts discovered in the investigation of tropical disease not infrequently throw new light on disease as it occurs in temperate climates. Consequently, the American physician welcomes an extension of medical investigation in the tropics and is interested in its results.

An institute for medical research exists in the Federated Malay States from which has been recently issued a report which is part one of the fourth volume of published studies. The author of this report is C. W. Daniels, late Director, Institute for Medical Research at Kwala Lumpur. The report is a study of beri-beri, and especially considers the mode of spread of the disease. The prison population of the islands is dealt with, since this forms a class whose mode of life is rigidly limited and whose food supply is absolutely controlled. Daniels believes that the characteristic symptoms of beri-beri are due to lesions secondary to an unknown primary condition — a secondary neuritis. It is an infectious disease spread from one prisoner to another. He does not believe that food is a causative agent though it may transmit the etiological factor. This view is opposed to the one very generally held that the disease is caused by eating bad rice. Daniels thinks that an ectoparasite may be the intermediate host, and possibly this is a bedbug or pediculus, but of this he has no positive proof. In many ways the disease suggests a protozoön disease but cultural and microscopic study has yielded him no positive evidence. As to prophylaxis Daniels believes that "in view of the failures of various attempts at disinfection of buildings and places and of various modifications of diet to have marked effects, more attention should be paid to limiting the chances of personal infection, and that particular attention should be paid to personal cleanliness, freedom from vermin, and isolation of early or trivial cases of the disease."

MEDICAL NOTES.

The Death of Sir Michael Foster. — The death of Sir Michael Foster on Jan. 29, after a brief illness, is announced. He had long been associated with problems of physiology in England and was likewise much interested in public affairs. A full obituary notice will be published later.

The Hypothetical Question. — The hypothetical question is getting to be, one may say has become, an increasingly undesirable, offensive and intolerable form of chicanery as practised in the presentation before juries in our courts of the so-called medical expert testimony.

Malaria in Greece. — As stated in *Science*, the Liverpool School of Tropical Medicine sent Prof. Ronald Ross, C.B., last year to Greece to study the question of the prevalence of malaria there. As the result of that visit, the school has made a strong effort to raise funds in England for combating malaria in Greece and has despatched to Sir Francis Elliot, British minister at Athens, £200, being the amount of the first donations collected.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Feb. 13, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 57, typhoid fever 1, measles 11, tuberculosis 52, smallpox 0.

The death-rate of the reported deaths for the week ending Feb. 13, 1907, was 21.65.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Feb. 9, 1907, was 221, against 244 the corresponding week of last year, showing a decrease of 23 deaths and making the death-rate for the week 19.14. Of this number 116 were males and 105 were females; 216 were white and 5 colored; 124 were born in the United States, 94 in foreign countries and 3 unknown; 33 were of American parentage, 158 of foreign parentage and 30 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 51 cases and 3 deaths; scarlatina, 91 cases and 1 death; typhoid fever, 5 cases and 0 deaths; measles, 10 cases and 0 deaths; tuberculosis, 46 cases and 32 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 36, whooping cough 0, heart disease 22, bronchitis 7 and marasmus 3. There were 16 deaths from violent causes. The number of children who

died under one year was 25; the number under five years 42. The number of persons who died over sixty years of age was 67. The deaths in public institutions were 80.

There were 2 cases of cerebrospinal meningitis reported during the week.

MAINE ACADEMY OF MEDICINE AND SCIENCE. — The meeting of the Maine Academy of Medicine and Science at Portland for the discussion of the bill introduced by the State Bar Association of Maine, and now pending in the Maine State Legislature, has been adjourned at the request of the friends of the bill to Saturday, the 16th of February, at which a dinner will be given and distinguished persons invited.

NEW YORK.

REAPPOINTMENT OF DR. ALVAH H. DOTY. — Governor Hughes has reappointed Dr. Alvah H. Doty Health Officer of the Port, a position which he has held through succeeding administrations since 1894. In announcing the appointment the Governor says: "The reappointment of Dr. Doty is justified by the efficient service he has given the people in the past."

A CENTENARIAN. — Mrs. Drusilla Morrell, of Brooklyn, N. Y., died on Feb. 4, at the apparently well-authenticated age of one hundred and ~~two years; it~~ is stated that she was born in Marlborough, Mass., on Oct. 22, 1804. Her husband was a soldier of the War of 1812, and with him she removed in 1836 to Brooklyn, where he was appointed a tollgate keeper.

A PROFESSORSHIP OF PROTOZOÖLOGY. — At the last monthly meeting of the trustees of Columbia University it was announced that the title of Gary N. Calkins had been changed from Professor of Invertebrate Zoölogy to Professor of Protozoölogy. It is stated that this is one of the first chairs of the kind to be established in any university in the world.

CONTRIBUTIONS TO BETH ISRAEL HOSPITAL. — At a dinner given on Feb. 6 by the directors and medical staff of the Beth Israel Hospital, in honor of its president, Joseph H. Cohen, $21,000 was contributed by guests toward the hospital fund, the gifts ranging from $5,000 to $500. The directors and medical staff subscribed $1,000.

PRACTICE OF MEDICINE AND ADMINISTRATION OF DRUGS. — On Feb. 8 the Appellate Division of the New York Supreme Court made an important ruling, to the effect that the practice of medicine does not necessarily involve the administration of drugs. This decision was handed down in affirming the conviction of one E. Barton Alcutt, of practicing medicine without a license, in the Court of Special Sessions. The defendant practiced what he termed "mechano-neural therapy," but claimed that he did not require a license because he did not prescribe or administer any drugs.

OSTEOPATHY BEFORE THE LEGISLATURE. — The osteopaths have renewed their annual attempt before the legislature to secure recognition by the establishment of a separate examining board, and on Feb. 7 a hearing was given on the bill on the subject before the public health committees of both houses. Drs. Arthur G. Root and Albert Vander Veer of Albany were the principal speakers in opposition to the bill, and in his remarks Dr. Root urged the closing of the osteopathy school now in operation.

MORTALITY DURING JANUARY. — The weekly reports of the Health Department show that during the month of January the mortality in the city represented an annual death-rate of 19.74, as against 18.11 in December and 18.59 in January, 1906. The corrected death-rate, excluding non-residents and infants under one week old, was 1,857. Among the diseases in which there was an increased fatality were the following: The weekly average of deaths from diphtheria and croup increased from 35 in December to 43.5 in January; the weekly average from influenza, from 7 to 12.25; from epidemic cerebrospinal meningitis, from 8.5 to 12.25; from pulmonary tuberculosis, from 173.75 to 186.5; from pneumonia, from 148.75 to 190; from bronchopneumonia, from 104.5 to 142; from diarrheal diseases, from 37.75 to 46; from diarrheals under five years of age, from 32 to 39.25; from apoplexy, congestion and softening of the brain, from 62.75 to 63.75; from organic heart diseases, from 129.25 to 146; from Bright's disease and nephritis, from 128.25 to 130.25; and from cirrhosis of the liver, from 21 to 22.25. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever decreased from 13 to 9; from whooping-cough, from 10.25 to 7.75; from acute bronchitis, from 28.75 to 19; and from cancer, from 62 to 55. The increase in the number of deaths, both over December and over January of last year, is probably to be attributed largely to the colder and more inclement weather, particularly as regards the

mortality from pneumonia, bronchopneumonia, influenza and organic heart diseases. In January, 1906, the weekly average of deaths from pneumonia was 167.25, from bronchopneumonia, 116.5, from influenza 9.5, and from organic heart diseases, 114.75. The mortality from measles, however, was decidedly less than last year, the weekly average in January, 1906, being 29.5, and in January, 1907, but 5.5. In the last week of January there was one death from smallpox, the first recorded in the city for many months.

Annual Report, State Commission in Lunacy. — The annual report of the State Commission in Lunacy, just issued, states that during the past year the increase in the number of insane in the state of New York was 5,761, and that the total number of insane in the institutions of the state at the close of 1906 was 28,302. During the year, 1,468 patients were discharged as cured, while in addition 1,142 had recovered sufficiently to resume a life free from restraint. The total amount expended on the state hospitals for the insane was $5,722,429, which was at the rate of $353 for each patient, including medical attendance and the salaries of employees. The commission reports the completion of the large nurses' home at the Kings Park State Hospital, accommodating 200 employees of this class, and asks for appropriations for the construction of nurses' homes on the grounds of three other of the state hospitals. Each of these homes is designed for 150 nurses and the estimated cost of each is $75,000. The commission urges immediate consideration of the needs of the metropolitan district for the accommodation of patients. The state's lease of Ward's Island expires within the next six years, and an appropriation is requested at once to provide a site for an entirely new establishment. The commission recommends the extension of the plan of farm colonies in connection with the existing state hospitals, and speaks highly of the results of treatment at such of the hospitals as already have these adjuncts. Excellent results are also reported in the treatment of the tuberculous insane in the sun pavilions recently erected at the Binghamton Hospital and the St. Lawrence Hospital at Ogdensburgh. An interesting feature of the report is the account of the so-called after-care system, which during the year was inaugurated by the State Charities Aid Association under the general supervision of the commission. A definite plan has been adopted by this organization for looking after patients discharged from the state hospitals in order that their resumption of ordinary life in the community may be rendered as free from disturbing elements as possible.

Obituaries.

JULIA WALLACE-RUSSELL, M.D.

IN MEMORIAM.

During the summer vacation the New England Hospital Medical Society lost another of its oldest members, Dr. Julia Wallace-Russell, of Concord, N. H., who died June 30, 1906.

It seems fitting when such a life goes out from us that we should pause a moment, and recall her many virtues. Dr. Russell was born in the old Granite State, sixty-three years ago. She became a teacher for a short time, but the medical instinct was strong within her, which led her finally to take up that profession for her life work. She graduated at the Medical College of the New York Infirmary, and then served a year as interne in the New England Hospital for Women and Children.

In New York she came under the influence of Dr. Emily Blackwell, and in Boston under that of Dr. Zakrzewska, both of whom seem to have made a deep impression on her life. She settled in Concord, N. H., in 1878, being the first woman to join the New Hampshire Medical Society.

Dr. Russell was a typical New England woman of her time. She had not enjoyed the advantages of an academic education, nor of foreign study, but her faithfulness to duty, her sterling character and common sense soon made themselves felt upon her patients, and her practice grew unprecedentedly fast.

She did not hesitate to ask counsel of her brother physicians, when in doubt about a case, and in course of time her counsel and advice came to be frequently sought by the men physicians of the state.

Dr. Russell was always loyal to women physicians, and missed being in touch with them so much that she early joined this society, and for many years was a frequent attendant at its meetings, contributing to their interest by papers and discussions.

She felt very strongly the lack of a place where poor women could be treated by their own sex. This led her in 1895 with the aid of her sister and a few friends to found the New Hampshire Memorial Hospital for Women and Children. One year later this was opened to patients, and soon after a Training School for Nurses was established in connection with it.

Dr. Russell was the physician in charge and ever after gave freely of her time and money to this cause.

Every day, winter and summer, rain or heat, she was at her post of duty. Her courage and fidelity never wavered, and to-day her name stands among the most honored women of her state.

In recognition of her connection with us,

your committee would like to present the following resolutions:

Resolved, That in the death of Dr. Russell this society has lost one of its oldest and most honored members and the medical profession a devoted and successful physician — one whose sterling qualities of character and heart have left a noble example for others to follow.

Resolved, That while we mourn our loss, we rejoice in the good she accomplished. Of her it may be said: "Well done, good and faithful servant."

Resolved, That a copy of these resolutions be sent to her family, and also be recorded in the minutes of this society, and published in the BOSTON MEDICAL AND SURGICAL JOURNAL.

MARY A. SMITH, M.D., *Chairman*.
MARY F. HOBART, M.D.

PAUL JULIUS MOEBIUS.

THE death of Dr. Paul Julius Moebius, of Leipsic, on Jan. 8, is announced at the early age of fifty-four. He was born in the city where he finally died and prosecuted his early studies there, and at Jena and Marburg. On the completion of his medical education he became docent at the University of Leipsic and continued in that position for ten years. His death was due to an osteosarcoma.

For many years Moebius has been known as a prolific and virile writer on topics in general connected with neurology and psychiatry. His work in neurology was significant. He promulgated a theory of Graves's disease, marked off from other affections the symptom-complex known as akinesia algera, added to the knowledge of progressive facial hemiatrophy and took active part in discussions regarding the nature of hysteria. He was, however, particularly known beyond the medical profession by his work on psychiatrical subjects, and particularly those having direct social bearings. A list of his publications would occupy much space and would cover a wide range of subjects. His discussions of the psychopathology of Goethe, Rousseau, Schopenhauer and Nietzsche were widely read, but his brochure on the intellectual inferiority of women brought him still more into the public gaze.

He wrote with facility and with freedom from conventionality. The subjects he undertook to elucidate were such as to excite public comment, which he received in large measure. As a man he was modest, retiring, and eager rather to express his thoughts regardless of consequences than to receive the commendation of his fellowmen and its accompanying honors.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. JAN. 26, 1907.

1. *MAYO, C. H. *Goiter.*
2. *HERTZLER, A. E. *Operation for the Shortening of the Broad Ligaments.*
3. LAVENSON, R. S. *A Case of Chronic Joint Disease, with Marked Osteo-Atrophic Changes.*
4. *MUELLER, F. *A New Primary Position in the Bloodless Treatment of Congenital Joint Dislocation.*
5. CRYER, M. H. *Variations in the Frontal Sinuses.*
6. *KRAUSS, W. C. *Tumor of the Right versus Tumor of the Left Frontal Lobe of the Brain.*
7. BEGGS, W. N. *Some Ways to Prevent the Spread of Tuberculosis.*
8. KNOPF, S. G. *A Plea for Cremation in Tuberculosis and Similarly Infectious Diseases.*
9. *AMBERG, S. *The Opsonic Contents of the Blood of Infants.*
10. SHELLY, E. T. *Superstition in Teratology, with Special Reference to the Theory of Impressionism.*
11. LEONARD, C. L. *Therapeutic Uses and Dangers of the Roentgen Rays.*
12. BOGGS, R. H. *The Roentgen Rays in Superficial Lesions.*
13. WILLIAMS, E. G. *The Treatment of Malignant Growths by the Roentgen Rays.*
14. *LEFFMAN, H. *Starch Sugar (Glucose and Grape Sugar) as a Food Adulterant.*
15. *SWINBURNE, G. K. *The Antigonococcus Serum of Rogers and Torrey in Epididymitis.*
16. *WILBUR, C. L., *Legislation for Vital Statistics in the United States.*

1. Mayo believes that the success of the surgical treatment of goiter is not sufficiently appreciated. After a description of the anatomy, physiology and pathology of the thyroid gland, he gives in outline his own operative technic. In seventeen years he has operated upon 300 thyroids, with 11 deaths. Of these 110 were for exophthalmic goiter, with 9 deaths, only 2 occurring in the last sixty-four cases. Of the cases of exophthalmic goiter which survived operation, 50% made an early recovery, 25% improved after several months and 25%, although greatly improved, occasionally had temporary relapses of tachycardia.

2. Hertzler maintains that in works on anatomy the broad ligaments are inadequately described for the purposes of operative gynecology. He has made a large number of careful dissections by which he has demonstrated an arrangement of ligamentous fibers of great practical importance. Lying between the two layers of peritoneum which cover the broad ligaments, the fibrous tissue is gathered mainly into two ligamentous bands extending inward from their origin in the pelvic fascia. Of these bands the upper one is attached to the uterus close to the corner; the lower band extends downward as well as inward to the cervix, most of its fibers passing beneath the uterine artery and the ureter. In operating for prolapse of the uterus the lower bands are exposed, divided on each side of the cervix and the two lateral divided ends united, with as much shortening as is desired, in front of the cervix. In patients in the childbearing age the fundus is also drawn forward by shortening the round ligaments

4. Mueller explains the frequent failures of the Lorenz treatment by an abnormal twisting of the neck of the femur. In these cases of congenital dislocation, the femur neck, instead of facing the socket as it normally does, points straight forward past the socket whenever the patient is placed in the erect standing position. In such a case the femur head can be only partly permanently replaced and is liable to be easily redislocated. He, therefore, introduces a modification of the Lorenz method by adopting a primary position with the thigh in rectangular abduction in such a way that the knee cap is turned toward the frontal plane and maintains this position by a plaster cast, reaching to the ankle joint or even to the toes. The position of the kneecap serves in this way for the determination of the position of the femur neck. The results obtained are, he says, most satisfactory. The method does away with the brutal widening of the capsule after the operation and simplifies the after treatment. The article is illustrated.

6. Krauss discusses the question of the function of the frontal lobes and summarizes his conclusions as follows: (1) The prefrontal lobe of the left hemisphere is, in all probability, the seat of reason, memory, intuition and judgment, or the higher intellectual faculties. (2) A distinct center for writing and printing exists in the base of the second frontal convolution of the left hemisphere. He refers to the work of other writers, and reports two cases, one of glioma in the right frontal lobe, in which the symptoms were merely

severe pain and optic neuritis, the other of glioma of the left frontal lobe in which, together with the symptoms of headache and optic neuritis, there was marked mental apathy resembling a mild type of acute dementia, with the consequent symptoms of slowness and hesitancy of speech, loss of memory and ideation, but no paralysis or localized spasm. In this second case agraphia, both for writing and for printing, was marked, subsiding somewhat after operation.

9. Amberg has tested the opsonic content of the blood in infants, breast-fed and otherwise, and in different conditions of health and nutrition. His results do not altogether support Moro's finding that the blood of breast-fed infants always exceeds in bactericidal power that of other infants; while the kind of food may exert an influence, other factors must enter into consideration. One of these appears to be the state of nutrition, but there are indications that there are still other factors that come into play in certain cases. While he admits the insufficiency of the data, he offers tentatively the following conclusions: (1) The opsonic content of the infant's blood does not seem to follow the rules laid down by Moro for the bactericidal power of the blood. (2) The average values for the opsonic content of infants' blood exceed those laid down by Simon for normal adults. (3) A distinct advantage seems to exist in favor of the breast-fed infant. This advantage does not seem to be dependent so much on the breast feeding as such, as to some extent on the state of the nutrition of the infant and, perhaps, on the constitution.

14. Leffman believes that the advisability of allowing commercial glucose and grape sugar to be used in foods is open to serious question. It is now known that the sugars formed chemically from starch are very different from the normal digestive products of starch and of cane sugar. Moreover, the process of manufacture of glucose and grape sugar involves the use of sulphuric acid, which often contains lead and arsenic. In England a few years ago extensive poisoning was traced to arsenical glucose. Sulphites also may be present, which are protoplasmic poisons. Thus the uses of starch sugars should be more strictly regulated.

15. Swinburne has employed the Rogers and Torrey antigonococcus serum in 13 cases of epididymitis. He was able to trace 11 of the patients through the whole course of their ailment. Eight were treated within twenty-four hours of the beginning of their symptoms; three had had the trouble three or four days. Three patients received two injections, four received two, two received four and two received five injections. In three patients who received two injections twenty-four or forty-eight hours apart, there was apparent complete recovery in a few days, then a slight relapse requiring another injection. In all the cases but two the patients had no pain after the fourth day, except in the three who relapsed. In five there was left no trace of the disease, in four there was a slight nodule and in two there was a rather soft mass left about the epididymis. Four of the cases were severe from the start. Swinburne believes the serum had a distinct effect in all the cases, markedly modifying the course and shortening the duration of the disease, and in several of the cases the quickness of the recovery was remarkable.

16. Wilbur declares that the condition of vital statistics in the United States is a reproach to the country. He states that the importance of vital statistics, both from a legal standpoint and for the purpose of effective sanitary administration, is altogether overlooked by us. He takes up in detail the necessary provisions of a registration law for deaths and calls attention to the evils of non-enforcement of the law when one exists.

The Lancet.

Jan. 19, 1907.

1. Batten, F. E. *The Diagnosis of Tumours of the Spinal Cord.*
2. Bampton, A. H. *Skepticism in Therapeutics.*
3. *Bunch, J. L. *On Opsonins and Treatment by Bacterial Vaccines.*
4. Harnett, W. L. *A Case of Hemorrhagic Cyst of the Spleen.*
5. Holdich, J. C. *The Relative Sizes of the Maternal Pelvis and of the Fetus in Europeans, Eurasians, East Indians and Bengalis.*
6. *Forsyth, D. *A Fatal Case of Myxedema with Changes in the Parathyroid Glands.*
7. Moullin, C. W. M. *Pyloric Stenosis and the Condition of the Pylorus During Life.*
8. Spicer, J. E. *A Case of Abnormal Development of the Esophagus.*
9. *Sawyer, J. E. H. *Some Observations on Fat Necrosis.*
10. Mennell, Z. *Notes on a Case of Disseminated Sclerosis.*
11. Field, F. E. *Diphtheritic Membrane, Involving the Pharynx, Esophagus, and Respiratory Passages.*
12. Atkinson, S. B. *Some Limitations of Medical Evidence.*
13. McCollum, H. A. *William Addison, M.D.: The World's First Hematologist.*
14. Little, J. S. *Notes upon Health Resorts. A Layman's View of the Riviera.*

3. This paper is largely a consideration of the theory of opsonins and the various investigations which led up to it. The work of Wright and Douglas is gone into in detail; the practical application with regard to tuberculosis is fully discussed. The preparation of tuberculin of various kinds and the uses of each are considered. A few illustrative cases are given.

6. Fatal cases of myxedema are now rare. This case with careful histological report is, therefore, of interest. The thyroid showed the typical fibroid changes characteristic of myxedema, in this case in an extreme degree; there were six parathyroids and in each there was evidence of an extreme degree of activity as if they were trying to replace the lost function of the thyroid gland.

9. Sawyer gives the pathological findings in 8 cases of fat necrosis; six of these cases were of primary pancreatic disease, one of HCl poisoning and one of mitral disease. The necrosis was more abundant near the pancreas than anywhere else, which suggests that it is due to a leakage from the pancreas into the tissues around, either by means of a direct leakage into the peritoneal cavity or by means of the lymphatics; probably it is caused in both ways. Eppinger has suggested that the areas of fat necrosis are infarcts arising by the displacement of small portions of pancreatic tissue along the path of the lymphatics and that this tissue contains "activated" pancreatic ferment. Sawyer does not agree with this view.

British Medical Journal.

Jan. 19, 1907.

1. Bowlby, A. *Fractures of the Base of the Skull.*
2. *Barling, G. *Intraperitoneal Implantation of the Ureters into the Colon.*
3. *Paton, E. P. *Transplantation of the Ureter into the Bladder for Uretero-Vaginal Fistula.*
4. Mursell, H. T. *Traumatic Recto-vesical Fistula.*
5. Lockwood, C. B., and Shaw, E. H. *The Immediate Microscopical Diagnosis of Tumours During the Course of Operation.*
6. Leiper, R. T. *The Etiology and Prophylaxis of Dracontiasis.*
7. *Breinl, A., and Todd, J. L. *Atoxyl in the Treatment of Trypanosomiasis.*
8. Kilvington, B. *The Treatment of Paralytic Talipes Valgus by Tendon Transplantation.*
9. Branch, C. W. *Papain in Malignant Growths.*
10. Bevers, E. C. *Hydatid Cyst of the Neck, with Cellulitis caused by Rupture and Escape of Hydatid Fluid.*

2. Barling goes over briefly the development of the surgery of transplantation of the ureters for various causes and then gives the details of his own case, a youth of twenty who, after a fractured pelvis, suffered constant misery from the suprapubic vesical fistula until the ureters were finally diverted into the colon. The result up to date is excellent.

3. Paton describes in this paper his operation on a case in which the ureter was cut during an operation and had to be transplanted into the bladder.

7. The beneficial action of arsenic in thetreatment of sleeping sickness has long been noted; unfortunately in too many cases the patient dies of arsenic poisoning before a dosage can be reached which is fatal to the parasites in

the blood. The efforts to find a combination of arsenic less toxic to the human organism, and more so to the invading parasite have resulted in the discovery of "atoxyl" (meta-arsenic-anilid), which contains 37.6% of arsenic. This has been used before in treating some skin diseases and anemias. The Liverpool School of Tropical Medicine has sent 2,800 grs. of this drug to doctors and missionaries in the tropics, but as yet no results have been reported. The writers recommend using a 20% solution of atoxyl in sterile normal salt solution in subcutaneous or intravenous doses of 0.6 ccm. daily for four days. The solution should be warmed to blood heat before using. The dose should be increased gradually up to 1 ccm. every other day and then gradually reduced. This should be kept up till the blood is free from the parasites or till toxic symptoms arise. The majority of reports as to the results obtained from this drug have been favorable; it is as yet too early to speak definitely however. [*Cf.* Koch's article on sleeping sickness, abstracted in the BOSTON MEDICAL AND SURGICAL JOURNAL, Feb. 7, 1907, p. 190.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 3.
JAN. 17, 1907.

1. DEYCKE and RESCHAL. *A Bacterial Fat as Immunizing Substance in Leprosy.*
2. KATZENSTEIN, M. *Chemical Changes in the Stomach Contents after Gastro-enterostomy, and the Influence of this Operation upon Ulcer and Cancer of the Stomach.* (Continued article.)
3. *KUTNER, R. *The Reflexes During Sleep.*
4. LESCHTSCHINSKI, A. E. *A Case of Chylous Ascites.*
5. STUHL, C. *The Treatment of Fractures of the Humerus Occurring During Delivery.*
6. FIEDLER, L. *The Treatment of Hernia into the Umbilical Cord in the New-Born.*

3. It has been claimed that the tendon reflexes are decreased and often absent in sleep. Kutner found this was not the case. In a large proportion, however, of cases of general paresis and of delirium tremens he found a positive Babinski only during sleep. This he attributes to a slight lesion of the pyramidal tracts, not sufficient to cause a positive Babinski when the patient was awake.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 3.
JAN. 15, 1907.

1. *TENDELOO, N. P. *Aero-lymphogenous Tuberculosis of the Lungs.*
2. SCHUCHT, A. *The Experimental Transmission of Syphilis to the Eyes of Rabbits.*
3. *HOFFMANN, F. A. *Rudimentary Eventration of the Diaphragm.*
4. BÜDINGEN, T. *The Treatment of Cardiac Patients in Sanatoria and its Indications.*
5. *ROEMISCH, W. *Late Results of the Tuberculin Treatment.*
6. *GANSER, S. *Treatment of Delirium Tremens.*
7. WEYGANDT, W. *The Care of Idiots in Germany.*
8. MITTERMAIER. *Hammer-toe and its Treatment.*
9. EIJKMAN, C. *The Polyneuritis of Hens and Beri-Beri Not Due to Poisoning with Oxalic Acid.*

1. Tendeloo shows that the hematogenous mode of infection is not probable in phthisis, because in miliary tuberculosis the tubercles are evenly scattered over all parts of the lung; the same is true of finely divided particles such as carmine when introduced into the blood current; phthisis, on the other hand, shows a predilection for the apices. A second possible mode of infection would be through the lymphatics from infected lymph nodes; this has been supposed especially for the mesenteric and cervical nodes. This mode must be regarded as possible, but no anastomosis can be shown between the lymphatics of the neck and the mediastinum, and in the case of the mesenteric nodes the bacteria would have to enter the general circulation through the thoracic duct and would, therefore, cause a miliary tuberculosis. To explain the fact that primary tuberculosis usually affects chiefly the upper lobes, it is necessary to study the physiology of the lungs. Tendeloo's researches have shown that the lymph current is most sluggish towards the apices and that here the respiratory expansion of the alveoli is least. This means that small substances, such as particles of dust or tubercle bacilli, will be deposited most readily in these places. And, in fact, it is found that anthracosis occurs chiefly in the upper lobes, just like phthisis. For anthracosis, however, it may be considered certain that the mode of entrance of the carbon particles is through the inspired air, and that they are then taken up by cells and passed into the lymphatics. The claim has been made that anthracosis also is of intestinal origin through the blood current, but the invariable absence of pigment from the mesentery glands, and the uneven distribution in the lungs, render this assumption improbable. Primary tuberculosis may occur in any part of the lungs, but where it is in the lower lobes, the lesions are usually small and show little tendency to spread (this remark applies, of course, only to *primary* infection and not to "metastatic" processes due to aspiration). This is because the lymph current being faster, the poisonous products of the bacilli are quickly removed, and the further growth of the tubercle is thereby inhibited. The same phenomenon is seen in chronic miliary tuberculosis, in which tubercles attain a much larger size in the upper lobes than in the lower lobes. To sum up, infection in primary tuberculosis of the lungs takes place primarily from the inspired air, the germs being taken up by the lymphatics in the lung and carried to the apices, where they are deposited.

3. Eventration of the diaphragm is a condition in which, owing to weakness of the diaphragm, its position is very high on one side, usually the left; the lung is compressed, the heart displaced and tympany due to the stomach or intestines may extend up to the second rib. Hoffmann has observed a number of cases in which this condition was present in a rudimentary form, and believes that it is not infrequent. The diagnosis is best made by means of the x-ray, which shows the high position of the diaphragm, and just beneath it a rounded, bright area due to air in the stomach. The symptoms occur chiefly after meals and consist of pain in the region of the stomach and palpitation. The treatment includes small, frequent meals, and breathing exercises to strengthen the diaphragm.

5. Roemisch reports that the excellent results from tuberculin treatment published by him in 1902 have been permanent. These cures were obtained in cases which had resisted for long periods the best hygienic-diatetic treatment in high Alpine sanitoria, and can only be attributed to the use of tuberculin. The selection of cases is important. Acute cases with fever should be treated first by absolute rest, for they may be rendered worse by the use of tuberculin at this time. Roemisch begins with .001 mg., and increases the dose gradually in such a way that a violent reaction is never produced. Slight fever, increase in the amount of sputum and malaise call for a reduction in the dose. The kind of tuberculin used does not make much difference, but sometimes benefit is obtained by changing from one kind to another.

6. Ganser obtained a reduction in the mortality of delirium tremens from 6.4% to .9% by the careful use of digitalis. He uses it in all cases from the beginning; if, in spite of this, the heart becomes weak, injections of camphor are added. His experience covers 1,000 cases, of which about one half were treated with digitalis, the therapy being in all other respects the same.

BERLINER KLINISCHE WOCHENSCHRIFT, No. 43.
OCT. 22, 1906.

1. MARAGLIANO, E. *The Specific Treatment of Tuberculosis.* (Continued article.)
2. *RAUTENBERG. *Poisoning by Oil of Sesame, with Methemoglobinemia.*
3. *ROJAS, J. C. *On Atrophy of the Intestinal Mucous Membrane.*
4. JANSEN, H. *The Influence of Heat in the Finsen Treatment.*
5. POSNER, H. L. *The Cystology of Gonorrheal Pus.*
6. HALLER, M. *Is the External or the Internal Operation Preferable in Empyema of the Antrum?* (Concluded.)

2. In Rautenberg's case very alarming symptoms followed the use of oil of sesame by the rectum. The patient became cyanotic and unconscious, with edema

of the lungs. The blood was coffee colored and showed the characteristic absorption bands of methemoglobin; the urine showed the same bands but faintly. Recovery took place. He attributes the symptoms to impurities in the oil used. Cares should be exercised to secure a pure preparation.

3. Rojas reports a case of atrophy of the intestinal mucous membrane in chronic intestinal obstruction, which resembled exactly that seen in pernicious anemia. Such atrophy, therefore, cannot be considered characteristic of pernicious anemia.

OCT. 29, 1906.

1. *HOFFA, A. *Marmorek's Anti-tuberculosis Serum in the Treatment of Surgical Tuberculosis.*
2. KRÖNIG, C. *A Simple Expedient to Elicit the Knee-Jerk.*
3. *HOFFMANN, E. *The Diagnostic Significance of the Spirocheta Pallida.*
4. MORGENROTH and CARPI. *A Toxolecithid in the Poison of Bees.*
5. COHN, M. *The Intestinal Origin of Anthracosis of the Lungs.* (To be continued.)
6. MARAGLIANO, E. *The Specific Treatment of Tuberculosis.* (Continued.)
7. *SIMON, F. *A New Test for Free HCl in Gastric Contents.*

1. Hoffa, the well-known Berlin orthopedist, reports excellent results in bone and joint tuberculosis from the use of Marmorek's anti-tuberculosis serum. It was used in doses of 2 to 10 cc. either subcutaneously or by rectum; the latter method gave as good results and was not followed by urticaria. Cure was observed in 18%, marked improvement in 27%, benefit in 36%, no effect in 18%.

3. Hoffmann points out the great value of the demonstration of spirochetes in cases where the clinical signs are doubtful. It enables a very early diagnosis of chancres, so that treatment may be begun before the outbreak of secondary symptoms. Moist papules and mucous patches may be distinguished from chancroid and herpes, and latent syphilis may be recognized by the examination of the fluid withdrawn by puncture of the lymph nodes. The presence of typical spirochetes is pathognomonic, but their absence does not exclude syphilis.

7. Simon proposes a new test for free HCl in the gastric contents, which rests on the principle that nitrous acid oxidizes guaiac with the production of a blue color. The test is performed as follows: A knife-point of powdered guaiac is dissolved in 5 cc. of a mixture containing spiritus aetheris nitrosi 10 parts, spir. vini 40 parts. Five cc. of filtered stomach contents are overlaid with a few centimeters of the solution; at the junction of the two a gray, white ring is formed, which in the presence of free HCl quickly turns blue, or if the amount is very small, green. The HCl forms nitrous acid from the sweet spirits of nitre, and the nitrous acid oxidizes the guaiac. The test is even more delicate than Günzburg's, and is not given with other ingredients of stomach contents.

NOV. 5, 1906.

1. BERNHARDT, M. *Status Hemi-epilepticus.*
2. *DEGE. *The Etiology of Paralysis of the Recurrent Laryngeal Nerve.*
3. HÜBNER, A. H. *Nervous Syphilis.*
4. SEELER, J. *The Treatment of Cystitis with Alcohol.*
5. *MARAGLIANO, E. *The Specific Treatment of Tuberculosis.* (Concluded.)
6. *COHN, M. *The Intestinal Origin of Anthracosis of the Lungs.* (Concluded.)

2. Dege reports several cases of paralysis of the recurrent laryngeal due to trauma, and one complicating a pneumonia of the right upper lobe, probably due to direct extension of the inflammatory process from the lung.

5. Maragliano gives the results of his researches on the specific treatment of tuberculosis, covering a period of many years. He found that antibodies could be produced in animals by the injection of living or dead tubercle bacilli, or extracts of bacilli, or the filtrate of bacterial cultures. The substances produced included antitoxins, bacteriolysins and agglutinins. The protective substances are contained in the tissues, serum, leucocytes, and milk. The injection of serum containing these antibodies causes a new production of antibodies in the animal receiving the injection. It is possible by such methods to immunize animals against tuberculosis, and to heal previously existing experimental tuberculosis. Maragliano uses in the treatment of human tuberculosis "bacteriolysine," a serum obtained from goats immunized with expressed extract of dead tubercle bacilli. The results have been excellent in joint and gland tuberculosis and in the early stages of phthisis. Later cases, especially if secondary infection has occurred, show as a rule no cures, though improvement may take place. The results are apparently the same whether the serum is given subcutaneously or by mouth. Brilliant results are claimed for the preventive inoculation of children from tuberculous families. The children have in no case developed tuberculosis, and show the presence of specific antibodies in their blood. The inoculation is performed on the arm like vaccination; the material used consists of the inflammatory products obtained by injecting dead tubercle bacilli under the skin of an animal. A single vaccination suffices.

6. Cohn refutes the experiments of Vansteenberghe and Grysez, who claimed to have demonstrated the intestinal origin of pulmonary anthracosis. He shows that all their results are capable of being interpreted as inhalation anthracosis, the presence of which is physiological in the animals used by them. He repeated their experiments, using cinnabar, which, owing to its red color, is preferable to India ink, because readily distinguished from the black carbon pigmentation. He found that it was not deposited in the mesenteric glands or in the lungs, nor in fact was it absorbed at all from the intestines.

DIE THERAPIE DER GEGENWART.

JANUARY, 1907.

1. KRAUS, F. *Does Fever of Itself Demand Treatment?*
2. *SCHULTZE, F. *Clinical Notes.*
3. *MINKOWSKI, O. *The Treatment of Edema by the Regulation of the Amount of Water and Salt Ingested.*
4. *KLEMPERER, G. *When to Operate in Diabetic Gangrene.*
5. *GÉRONNE. *A Case of Fever Due to Syphilis of the Liver.*
6. *KRÜGER, W. *Clinical Investigations with Theolactin, a New Diuretic.*

2. The absence of reaction to light on the part of the pupils has hitherto been regarded as characteristic of epileptic as distinguished from hysterical paroxysms. Schultze reports a case of undoubted hysteria in which, in the first few moments of the attacks, the pupils failed to react to light, and cities a few similar cases from the literature. He also reports a case of syncope in which there was absence of the light reflex.

3. Minkowski points out that a retention of water in the tissues is always accompanied by a retention of sodium chloride also, and that either one of these may be the primary factor in the production of edema. In pure cardiac hydrops, the retention of water is primary, that of salt secondary, and, therefore, no benefit is to be expected from restricting the amount of salt in the diet. On the other hand, a diminution of the fluid ingested down to 1½ or 1 liter per day is often efficacious. In hydrops of renal origin, the retention of salt is primary, and is due to the inability of the kidneys to excrete salt in proper quantity. Here, therefore, a restriction of the salt taken with the food is theoretically sound, and often gives surprising results in practice, in that the edema rapidly disappears. The best measure of the success of the treatment is the weight; the salt free diet is indicated as soon as the weight shows a marked increase even though edema may not yet be evident. In nephritis, restriction of the fluid ingested is not indicated, but rather a moderate increase, in order to flush the kidneys. It has been objected that such a course increases the hydrops, but this is only exceptionally the case. In chronic interstitial nephritis, no restriction of water is in place, for the kidney has lost

its power to secrete a concentrated urine, and a larger amount of water is necessary for the excretion of the waste products. Not all cases, however, react alike to these measures and especially in cardio-renal patients it is difficult to foretell what the result will be. Minkowski believes that in the regulation of the salt and water intake we possess a powerful agent for the treatment of edema.

4. Klemperer divides diabetic gangrene for the purpose of treatment into two classes: (1) Those without acidosis and (2) those with acidosis. The cases in the first class offer a good prognosis and usually recover without amputation; they are to be put on a strict diet and the wound treated with dry applications, supplemented by Bier's passive hyperemia. Those of the second class will surely die without operation, and a high amputation should be performed as early as possible. Cases with marked nephritis, and those which show acidosis only after they are put on a strict diet, are to be included in this category.

5. Géronne adds another to the few cases reported of fever due to syphilis of the liver. The patient presented several interesting features. Jaundice was present, contrary to the usual rule, and increased together with the fever at each menstrual period. The fever lasted several months and resisted all forms of treatment until mercury was employed, when a complete cure took place. No other signs of syphilis were present, but the husband gave a clear history of infection.

6. Theolactin is a double salt of sodium theobromin and sodium lactate, and, according to Krüger, possesses marked diuretic properties fully equal to those of diuretin It proved efficacious in some instances where other diuretics had failed, but in some cases no effect was observed. Its chief disadvantage is that it often causes vomiting and loss of appetite. The diuresis disappears as soon as the drug ceases to be given.

Noma. WEAVER AND TUNNICLIFF (*Jour. Infectious Diseases*, JAN. 1, 1907) publish an exhaustive study of the literature of noma or gangrenous stomatitis, and report a case with autopsy. The disease was known to the most ancient medical writers. It occurs almost exclusively in children, most often in children of the poor and as a sequela of some acute disease, especially measles. There is reason to believe that it is contagious. It is usually fatal. In bacterial studies, two organisms have been most frequently observed, the anaërobic, threadlike organism of Seiffert, and the diphtheria bacillus. Many other bacteria have been found in certain cases by other observers. In the authors' case fusiform bacilli and spirilla were present in the tissues. The article is of great value as a summary of our present knowledge of the disease, in its etiology, pathology and clinical course.

The Treatment of Certain Chronic Infectious Processes. BARKER (*Brooklyn Med. Jour.*, December, 1906) summarizes the principles of treatment of chronic infections under the following heads: (1) Keeping up the general strength; (2) removing the focus of infection, as in appendicitis; (3) increasing the flow of blood and lymph through the part, or producing passive hyperemia (Bier's method); (4) specific serum therapy, as in diphtheria; (5) inoculation methods, as recently urged by Wright, in which dead bacteria (such as compose "new" tuberculin) are injected in numbers guided by the patient's reaction, determined by changes in the opsonic index; (6) removal of unguarded points of entrance for bacterial invaders which may cause prolongation or recurrence of infectious processes in any part of the body. Under this last heading is mentioned particularly the benefit which has followed extirpation of the tonsils in chronic infectious forms of arthritis, as advocated by Goldthwait.

Miscellany.

IN MEMORIAM: DR. MARY PUTNAM JACOBI.

THE New England Hospital Medical Society of Boston is co-operating with the Women's Medical Association of New York City in the effort to raise the sum of $25,000 to pay a permanent tribute to the memory of Dr. Mary Putnam Jacobi, by establishing in her name a fellowship which shall be known as the Mary Putnam Jacobi Fellowship. A circular issued under their auspices states:

"Dr. Jacobi's interests were broad and numerous. She lent her influence and gave freely of her time to many movements for advancing the educational, economic and legal status of women.

"In her special domain, that of medicine, she won an international reputation and recognition as a woman physician by opening the Ecole de Médecine of Paris to women medical students. She did pioneer work in gaining admittance to a number of medical societies, thus establishing a precedent for other women. As Professor of Materia Medica and Therapeutics in the Women's Medical College of the New York Infirmary, she was an honor to the institution and an inspiration to her students.

"Her unusual spirit of helpfulness, which led her to seek every opportunity for women in medicine, seemed to make it especially appropriate that a permanent tribute to her memory should be along these lines. This particular form of endowment was decided upon partially in view of the fact that Dr. Jacobi herself felt most keenly the meagre and unequal opportunities for women in post-graduate hospital work.

"It is planned that the appropriation of this fund shall be as broad in its scope as possible. Any properly qualified woman graduate of medicine from an American medical school shall be considered eligible for the fellowship. The details as to the final award will be in the hands of a special committee. To have an adequate income it is necessary that the sum of twenty-five thousand dollars be raised."

Any one desiring to contribute toward the Mary Putnam Jacobi fellowship will please send subscription to Dr. Mary A. Smith, Treasurer for the New England Hospital Medical Society, 33 Newbury St., Boston, Mass.

NEW YORK ASSOCIATION FOR IMPROVING CONDITION OF THE POOR.

THE New York Association for Improving the Condition of the Poor has just issued the full proceedings of the milk conference held under its auspices in November last together with the names of the permanent committee, 38 in number, which was appointed at the request of the conference to continue the agitation of the question of an improved milk supply for the city. Among the members of this committee are President Nicholas Murray Butler of Columbia University, Bishop David H. Greer, and Drs. Simon Flexner, L. Emmet Holt and Ernst J. Lederle. The report of the conference was prepared by a special committee of five, the chairman of which is Dr. Rowland G. Freeman. The committee regards the inspection of dairies of prime importance, and urges that in order to

secure anything like a satisfactory inspection in the country districts a force of from sixty to eighty inspectors is required, while sixty additional inspectors are necessary for work in the city. The milk must be drawn from healthy cows, under conditions of cleanliness for animals, milkmen, premises, water, utensils and milk cans. The milk must be delivered cooled to 50° F. at the creameries, where it should be handled in a thoroughly sanitary manner and further cooled. Inspection must then follow the milk every step of the way to the consumer, protecting it from contamination and never permitting its temperature to rise at any stage above 50° F. While the members of the conference differed as to the extent to which a general attempt at pasteurization was practicable or desirable in New York, there was substantial unanimity as to the saving of infant mortality accomplished each summer through the agency of the Strauss milk depots. The results of observations made under the auspices of the Rockefeller Institute by Drs. Holt and Wm. H. Park were highly favorable to the use of pasteurized milk, and Health Commissioner Darlington stated that he thoroughly believed in the utility of depots for pasteurized milk for infants. As to whether this work should be carried on by the city or entrusted to private philanthropy, as at present, he was unable to say.

ANNOUNCEMENT OF SCHOLARSHIPS AND FELLOWSHIPS BY THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, NEW YORK.

The Rockefeller Institute for Medical Research purposes to award for the year 1907–1908 a limited number of scholarships and fellowships for work to be carried on in the laboratories of the Institute in New York City, under the following conditions:

The scholarships and fellowships will be granted to assist investigations in experimental pathology, bacteriology, medical zoölogy, physiology and pharmacology, and physiological and pathological chemistry.

They are open to men and women who are properly qualified to undertake research work in any of the above mentioned subjects and are granted for one year.

The value of these scholarships and fellowships ranges from $800 to $1,200 each.

It is expected that holders of the scholarships and fellowships will devote their entire time to research.

Applications accompanied by proper credentials should be in the hands of the secretary of the Rockefeller Institute, L. Emmet Holt, M.D., 14 West 55th Street, New York City, not later than April 1, 1907. The announcement of the appointments is made about May 15. The term of service begins preferably on Oct. 1, but, by special arrangement, may be begun at another time.

Correspondence.

LETTER FROM TOKYO.

Imperial Institute for Infectious Diseases. A Serum Institute. A Lymph Institute. A New Antitoxin Serum for Typhoid. Leprosy. Scleroderma.

Tokyo, Japan, Dec. 15, 1906.

Mr. Editor: A brief account of some medical things I have seen here may interest your readers.

Among other cases of interest at the hospital of the University of Tokyo I saw one of advanced tubercular peritonitis in a boy having a fecal fistula at the umbilicus, and in another ward were two typical cases of scleroderma side by side.

All the physicians here speak German and the bedside records are kept in German.

The Imperial Institute for Infectious Diseases, the Serum Institute and the Lymph Institute, all run by the government, have been brought together under the management of Professor Kitasato. There are stables for some two hundred horses and cattle from which to make sera. There are laboratories where antitoxins and vaccines are made for the entire nation. There is a special rat- and fly-proof building for the bacillus pestis alone. There is a small hospital for the *study* of infectious diseases, and there are laboratories to which practising physicians come from all parts of Japan. Here they become familiar with pathogenic bacteria and modes of prophylaxis, and when they have completed the course their names are enrolled upon a list from which deputy health officers are chosen in times of danger from epidemics.

In separate laboratories for each, antitoxins are made for diphtheria, tetanus, erysipelas, plague,[1] cholera, typhoid and Shiga's dysentery,[1] and vaccines are prepared for smallpox, plague, cholera and typhoid. Tuberculin also is provided, and hydrophobia is treated by Pasteur's method. A new antitoxin is being developed against the venom of the "habu," [2] a poisonous snake common in some parts of Japan.

Professor Kitasato is experimenting with a new antitoxin serum for typhoid, the process of making which is, for the present, a secret. Since serum therapy for typhoid was begun in the hospital of the Institute, it is claimed that the mortality has fallen to about 10% from a much higher figure. It is believed that serious epidemics of typhoid have been prevented by immunizing inoculations. Less confidence is placed at present in the antityphoid sera than in those for plague or cholera.

Hemorrhages are not common here in typhoid. Hydrotherapy is not used in typhoid, either at the Institute or in the hospital of the University.

Not far from the Institute is a private hospital lodging about thirty lepers. Though the majority of the patients have lesions of skin and nerves, there are a few in which the infection is limited to one or the other. One individual looking perfectly healthy complains of numbness of the little and ring fingers of the right hand; duration about two years. This case was diagnosed without finding bacilli. In another case presenting only a few small nodules on the face, bacilli were obtained from the nose. Serum treatment is being tried. The results are encouraging in some cases, but in others there is no benefit.

I think that serum therapy in the United States has not received the attention it deserves. I hope our government will undertake to provide reliable sera in the United States as it does already in the Philippines.

I wish to express my thanks to the Japanese physicians and scientists whom I met, for their great kindness to me.

Very truly yours,

Geo. C. Shattuck, M.D.

[1] Philippine Jour. of Sc., vol. i, no. 5. This number contains two articles of exceptional interest, one by Professor Kitasato on plague, the other by Professor Shiga on dysentery.

[2] Trimeresurus_ninkinamus.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 2, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,612	434	Quincy	7	1
Chicago	741	235	Waltham	5	—
Philadelphia	—	—	Gloucester	—	—
St. Louis	—	—	Pittsfield	—	—
Baltimore	223	51	Brookline	3	1
Cleveland	—	—	North Adams	8	0
Buffalo	—	—	Chicopee	8	4
Pittsburg	—	—	Northampton	7	3
Cincinnati	—	—	Medford	10	2
Milwaukee	—	—	Beverly	4	1
Washington	—	—	Hyde Park	2	0
Providence	74	19	Newburyport	—	—
Boston	261	56	Leominster	4	—
Worcester	55	11	Melrose	6	1
Fall River	35	13	Woburn	7	1
Cambridge	31	9	Marlborough	5	1
Lowell	50	22	Westfield	5	3
Lynn	31	6	Peabody	—	—
New Bedford	25	7	Revere	2	1
Springfield	36	6	Clinton	8	2
Lawrence	25	10	Attleboro	10	2
Somerville	27	5	Adams	4	1
Holyoke	21	7	Gardner	—	—
Brockton	11	4	Milford	—	—
Malden	—	—	Weymouth	7	0
Salem	21	7	Framingham	4	—
Chelsea	15	—	Watertown	4	0
Haverhill	19	5	Plymouth	—	—
Newton	14	3	Southbridge	4	4
Fitchburg	—	—	Wakefield	—	—
Taunton	21	2	Webster	—	—
Everett	6	—			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 30, 1907.

GWYN, M. K., passed assistant surgeon. Granted an extension of leave of absence for two days from Jan. 18. Jan. 25, 1907.

STIMSON, A. M., assistant surgeon. Leave of absence granted for seven days from Jan. 16, amended to read five days. Jan. 25, 1907.

MULLAN, E. H., assistant surgeon. Granted leave of absence for fourteen days from Feb. 7. Jan. 30, 1907.

FALK, CHAS. C., acting assistant surgeon. Granted leave of absence for ten days from Jan. 15, 1907. Jan. 25, 1907.

KNOWLES, RALPH, acting assistant surgeon. Granted leave of absence for five days from Jan. 28, 1907, under paragraph 210 of the regulations.

WATTS, T. W., acting assistant surgeon. Granted leave of absence for nine days from Jan. 22, 1907. Jan. 25, 1907.

BROWN, F. L., pharmacist. Granted leave of absence for ten days from Jan. 29, 1907. Jan. 29, 1907.

RICHARDSON, S. W., pharmacist. Granted leave of absence for ten days from Feb. 7, 1907. Jan. 28, 1907.

BOARD CONVENED.

A board of medical officers was convened to meet at Baltimore, Md., on Jan. 28, for the physical examination of applicant for cadetship in the Revenue-Cutter Service. Detail for the board: Surgeon L. L. Williams, Chairman; Passed Assistant Surgeon D. E. Robinson, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING FEB. 9, 1907.

SANKEY BACON, acting assistant surgeon. Appointed Acting Assistant Surgeon, from Feb. 1, 1907.

G. P. LUMSDEN, medical inspecter. Detached from the naval rendezvous, Dallas, Texas, and ordered home to wait orders.

F. H. STIBBENS, assistant surgeon. Ordered to the naval training station, San Francisco, Cal.

O. G. RUGE, pharmacist. Ordered to the Naval Medical School, Washington, D. C.

SOCIETY NOTICE.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—This society will hold a meeting on Thursday, Feb. 21, 1907, at 7.30 P.M., at the home of Sarah R. Stowell, M.D., Adams St., Dorchester. (Take Meeting House Hill car, get out at Adams St.) Section of Surgery, Dr. Sarah R. Stowell, chairman. Paper: Address on Ethics, by Dr. David W. Cheever.

BLANCHE A. DENIG, M.D., *Secretary.*

RECENT DEATHS.

HENRY JOSEPH GAFFNEY, M.D., M.M.S.S., died in Salem, Feb. 9, 1907, aged fifty-nine years.

ISAAC WARREN STARBIRD, M.D., M.M.S.S., of Dorchester, died Feb. 2, 1907, aged sixty-seven years. Dr. Starbird was born in Litchfield, Me., in 1839. He went to the War of the Rebellion as a captain in the 19th Maine Volunteers. He was actively engaged at the battle of Gettysburg, and commanded his regiment in the assault on Petersburg which led to Lee's surrender. After the war was over General Starbird studied medicine at Dartmouth, where he took his degree. He was in charge of the Soldiers Home at Chelsea. One of his sons is a practising physician in Dorchester.

DR. ELSNER CHRISTIAN GUNTHER, of New York, died on Jan. 31, at the age of forty-two years. He was born in New York and was graduated from Harvard in 1889. Three years later he received the degree of M.D. from the Harvard Medical School, and then studied abroad for five years.

DR. HENRY HARRIS DAVIDSON, of Northport, Suffolk County, N. Y., died on Feb. 5, in the sixty-seventh year of his age. He was the eldest son of the late Robert Davidson, D.D., and was graduated from the New York Medical College in 1864.

DR. WILLIAM H. DONNELLY died last week in Worcester, Mass. He was physician of the Floating Hospital during the summer of 1905 and later was house physician in the Holyoke Hospital. He was graduated from the Baltimore Medical College.

SAMUEL JAY MCDOUGALL, M.D., M.M.S.S., died in Boston, Feb. 8, 1907, aged seventy-six years. Dr. McDougall was born in Albany, N. Y., in 1830, and was graduated from the Albany Medical College in 1837. He was a pioneer in the formation of medical societies, and it was largely through his efforts that the Massachusetts Dental Society was organized in 1864.

BOOKS AND PAMPHLETS RECEIVED.

Studies from Institute for Medical Research, Federated Malay States. Vol. 4, Part 1. Observations in the Federated Malay States on Beri-beri. By C. W. Daniels, M.B. Camb., M.R.C.S. Eng. London: E. G. Berryman & Sons. 1906.

The Friendship of Dr. Nathan Smith and Dr. Lyman Spalding. By Dr. James A. Spalding. Reprint.

Des Indications de la Cystoscope a Vision Directe. Par le Dr. Georges Luys. Reprint.

Du microbe de la fièvre typhoïde (ileo-typhus) et de la théorie ternaire de Pettenkofer. By P. I. Koubassow.

Des microbes du paludisme. By P. I. Koubasoff. Reprint.

Annual Report of the Board of Health of the Department of Health of the City of New York for the Year ending Dec. 31, 1903.

Annual Report of the Board of Health of the Department of Health of the City of New York for the Year ending Dec. 31, 1904. Vols. I and II.

Original Articles.

THE RELATIONSHIP OF THE PHYSICIAN TO THE PUBLIC NEED.*

BY CLARENCE JOHN BLAKE, M.D., BOSTON.

The relationship of the physician to the public need is one which has greatly changed within the last half century, had been changing indeed, gradually, by an evolutionary process, in the time before, but has evolved more rapidly, within the period mentioned, under the influence of certain economic and educative conditions.

These have included, economically, the concentration of people by residence, and their dissemination by increased facilities for travel; the growing necessity for encapsulation within, or absorption into, the community life, of large numbers of aliens and, educatively, the enormous advance in medical research which has revealed the mechanism of the motive power of disease and made possible that series of beneficent activities which we aggregate under the title of preventive medicine.

Nor has the physician himself remained unchanged. At first, in the early history of medicine in this country, individually trained to an individual service in isolated communities living under healthy conditions, his relationship to individual needs made the main sum of his service; epidemics there were which had to be met, and were met individually but which, in default of knowledge of their causation, were regarded rather as visitations to be endured on the whole, and dealt with only in units, than battled with in the mass.

Both by instinct and by education, conservative, the physician has been reluctant to step outside of his individual responsibilities; but the demands of the times, the growing opportunities for public service and the increased appreciation of the value of the ounce of prevention are forcing him steadily, as a community factor, into an educative position in public affairs.

The Samaritan found a wounded man by the roadside, ministered to him, bound up his hurts, set him upon his own beast, conveyed him to an inn, or caravansary, which was not only the temporary home of the wayfarer, but stood in lieu of the hospital of to-day, and there left him, with charges prepaid, to such ministrations as might be necessary to his recovery. The word picture of the Samaritan, a member of a people set apart by their peculiar points of view, but not the less a reverent people, with tenets which impelled the practical, personal application of true benevolence and charitable conduct, has been taken as the typical presentation of the office of the medical profession, a representation which has been justified by the intensity of the definition of the true relationship between the doctor and his patient.

The service of the Samaritan was an individual one; it began and ended with self-effacing attention to the case in hand and provision for the necessary continuance of the benefaction; it had nothing to do with the conditions which brought about the mischance; it evoked no question as to the possible effect of effort at prevention; there was no thought of the safeguarding of the highway along which poured the passage of orderly traffic, of the legitimate business of life; with the individual succor applied to the individual need, the business of the man of Samaria began and ended.

The distinctive peculiarity of the education in medicine, as contrasted with the education for other professions, has set the medical profession apart as a cult in the great body of community life, and has served still more to emphasize the relationship of the doctor to the public as that best expressible in the attitude toward the need of the human unit; but in these modern days, the expansion of the education in medicine, through the impulse of the general advance in scientific research, the elevation of the medical school to the plane of a school of applied science and the evolution of the study of preventive medicine have served to broaden the outlook and to apply the tenets of the Samaritan to service in a wider field. No longer the servitor of the individual solely, though that office must always be conserved, the physician, to a greater or less extent, according to his abilities, has become a factor in public interests. Within his own peculiar province, still an arbiter of last recourse, he is coming to be called more in counsel by the other factors in the community welfare and, as a natural result of his own broadening thereby, is coming to take, increasingly, the initiative in matters of public concern which especially appeal to him from his own point of view.

In all matters which deal with a deviation from the human normal average, his intimate investigation of the human unit has afforded the physician the foundation of information for application to general community conditions and opens to him a sphere of usefulness, not only in the study of preventable diseases of the body and the mind, but in the study of preventable causative conditions also.

The safeguarding of the public health, in the broadest possible construction of that term, is, therefore, a legitimate outcome of the application of the original Samaritan principles to modern community conditions; and that this is a duty especially incumbent upon the medical profession to discharge is made plain not only by the public demand for such service, but by the educational provision which is being increasingly made to meet it, a striking instance to this effect being the new medical department of Harvard University, in which there is to be provided not only training for both undergraduates and graduates in medicine, but provision for special students, both within and without the profession, seeking instruction in public hygiene, in all that pertains to the application of medical teaching to the conduct of public institutions, and to welfare work in the safeguarding from the results of unwholesome living and the deleterious effects of

* Chairman's address at the Massachusetts Conference of Charities, held in Worcester.

the trades. In the light of this view it has seemed advisable to our president to devote a session of the present meeting to the illustration of this subject as it is presented in the program before you.

Two important subjects concerning the safeguarding of the public health, suggested for consideration, have been purposely omitted from the program for different reasons; in both of them the responsibility for the initiative rests especially with the medical profession. The first is the safeguarding from tuberculosis, which is omitted because it is already the subject of an individual campaign, vigorously prosecuted. The second is the subject of the, so-called, venereal diseases, especially propagable by relationship between the sexes but communicable also in other ways.

However much the medical profession may be at one in the recognition of the community injury effected by these latter diseases, it is by no means united as to the manner in, and the extent to, which the knowledge of which it is possessed should be brought before the public; and until such societies as that of Moral and Social Prophylaxis and the special committees appointed by various medical societies throughout the country have come to a definite conclusion of their own, the public consideration of this subject may, advisedly, be left in abeyance.

That it is a subject to be considered with as little sentimentality and upon as rational a business basis as that applied to other communicable diseases there is no matter of doubt, but the foundation for such consideration must be, first, the scientific ascertainment and tabulation of facts, and, second, a careful consideration and determination of the form of public education to be applied.

Since impairment of health and, correspondingly, of wage-earning capacity has an important bearing upon that which charitable organizations are called upon to consider, and because medical charities are open to large criticism on account of their pauperizing tendencies, it is well that the physician and the educated social worker should not only take counsel together, but have opportunity for the public, and educative, discussion of such problems as they have in common.

With such opportunities the outlook of the medical profession toward public service inevitably widens, the array of questions in which the physician may take elucidative part lengthens, and such subjects as the relation of hospitals to the community, the establishment of medical police work upon more definite and effective lines, the educational differentiation of defectives, the extension of compensatory education to the mentally sound but physically disabled, the betterment of transportation facilities for the sick and the insane by the establishment of a uniform ambulance system on railways, and other and newer problems, the outgrowth of community centralization, may advisedly be made subjects for conference in future meetings of this association.

To such gatherings as this the term conference is justly applicable; the bringing together of earnest and purposeful workers along special but related lines of social service, the presentation of the objective from various standpoints, the comparison of results and the suggestion of additional activities, broaden information, stimulate effort and strengthen endeavor.

THE DECREASE OF INFECTIOUS DISEASES CONSEQUENT UPON THE APPLICATION OF PREVENTIVE MEASURES.*

BY JOHN H. MCCOLLOM, M.D., BOSTON,

Physician for Infectious Diseases, Boston City Hospital; Resident Physician, South Department (Infectious Service); Assistant Professor of Contagious Diseases, Medical Department, Harvard University.

IN this paper an attempt will be made to show what has been done in the past few years towards the diminution in the frequency of the three principal infectious diseases, namely: diphtheria, smallpox and scarlet fever. It is beyond the scope of this paper to say very much regarding tuberculosis, typhoid fever and cholera. Certain suggestions will be offered regarding more efficient means of isolation and the importance of special hospitals for the treatment of the diseases just mentioned. These subjects will be treated from two standpoints; that of the general practitioner and that of health officials.

The science of preventive medicine which has made marked advances in this country in the past few years is yet in its infancy, and although much has been done in the prevention of disease, much yet remains to be accomplished. There is always a certain amount of friction between the general practitioner, health officials and the public. All of them have certain duties and certain responsibilities which they cannot evade. They should work in unison, in order to accomplish the best results. The health officials should be specially trained in their duties, as is the case in England and on the Continent. On the other hand, the general practitioner should not be sensitive regarding the invasion of his rights as the family consultant. He has *his* duty to perform not only regarding the individual patient, but also regarding the general public.

The sanitary code varies considerably in different countries. The most complete and satisfactory one is that of England. Sanitary laws in many instances must be arbitrary, and they sometimes seem to attack individual liberty. In no country in the world has the idea of individual liberty taken such strong root as in England. The English originated the law of *habeas corpus*, and the common saying that an Englishman's house is his castle shows very clearly how jealous the Englishman is of his individual rights; notwithstanding this, he submits willingly to laws which deprive him of a certain amount of individual license.

After the ravages of cholera in 1832 and 1833, preventive medicine commenced to have an important influence in reducing the death-rate of infectious diseases.

* Read, by invitation, at the Fourth Massachusetts State Conference of Charities, Worcester, Thursday evening, Nov. 15, 1906.

The sanitary administration of England is, in accordance with the Public Health Act of 1875, in the hands of a central authority, the local government board and local authorities, the local boards of health.

In 1776, the first steps were taken in France for the establishment of a public sanitary service. Each district has a council of public health, which corresponds to our boards of health. The duties of the medical officer of health are practically the same as those of England.

In other continental countries the rules and regulations regarding infectious diseases and other sanitary matters are quite strict and rigidly enforced.

It is a fundamental principle that, in order to limit the spread of a disease, its cause should be discovered. It is in this direction that valuable work has been done the past few years, not only by foreign investigators, but also by our own State Board of Health. The establishment of local health boards is no new thing, but the methods incident to increased knowledge of disease, as well as the power and responsibility of health officers, have materially changed. In 1797, more than one hundred years ago, an act of the legislature was passed authorizing the establishment of local boards of health. This act was changed slightly in 1817, and again in 1878. The text of the Act of 1895, now in operation, is as follows:

"Every town in the Commonwealth may elect a board of health by ballot at the annual meeting of the town, or at a meeting legally warned for this purpose, consisting of three persons, to serve, one for the term of three years, one for the term of two years and one for the term of one year, beginning with the day following such town meeting or until their respective successors are chosen and qualified; and thereafter such town shall, at its annual town meeting, choose in the same manner one person who shall hold office for three years from the day following such town meeting or until another is chosen and qualified in his stead. If no such board is chosen the selectmen shall constitute such board of health."

It will be seen from this that there is no mention of a physician on the board, but later an act was passed in which it was expressly stated that in cities and towns of more than five thousand inhabitants one member of the board should be a physician. In the acts of the legislature of 1895, so much of Section 3 of Chapter 218 of the Acts of the year 1894 as provides that one member of the board of health shall be a physician shall not apply to towns in which the selectmen constitute the board of health.

The organization of a state board of health is of much more recent date than that of local or city and town boards of health. In 1849, the idea of the State Board of Health of Massachusetts was brought to public notice, but the board was not established until twenty years later. There had been during the year 1849 a great deal of infectious disease, and the death-rate had been extremely high in Massachusetts. Dysentery, scarlet fever and typhoid fever had been extremely prevalent, and in addition Asiatic cholera had invaded the state causing the death of about 1,200 of the population. In that year a commission was appointed by the legislature to report upon the sanitary condition of the state. This commission advised the establishment of a general board of health, the duties of which were very clearly stated. When the board was finally established in 1869 under the title of the State Board of Health and Vital Statistics, it was organized very nearly in accord with the suggestions of the sanitary commission of 1849. The members of this commission were Lemuel Shattuck, Nathaniel P. Banks and Jehiel Abbott, men identified with the history of the state fifty years ago, one of whom was governor at a later period. No one of them was a physician, and, therefore, the medical profession must be relieved of the public suggestion of making an exaggerated claim for the importance of sanitary science. In the introduction of the report of the commission relative to the importance of public health regulations, the following passage appears:

"We believe that the conditions of perfect health, either public or personal, are seldom or never attained, though attainable; that the average length of human life may be very much extended, and its physical power greatly augmented; that in every year, within this Commonwealth, thousands of lives are lost which might have been saved; and that tens of thousands of cases of sickness occur which might have been prevented; that a vast amount of unnecessarily impaired health and physical debility exist among those not actually confined by sickness; that these preventable evils require an enormous expenditure and loss of money, and impose upon the people unnumbered and immeasurable calamities — pecuniary, social, physical, mental and moral — which might be avoided; that means exist, within our reach, for their mitigation or removal; and that measures for prevention will effect infinitely more than remedies for the cure of disease."

Admirable as this report of the sanitary commission was, it took twenty years for the public to appreciate the importance of a state board of health that should have cognizance of all diseases dangerous to the public health. Since 1869, when the board of health was organized, rapid advancements have been made in the prevention of contagious diseases, not only in man, but in the lower animals, and the power of a board of health to abate nuisances has been very much increased. The state board of health, as well as local boards of health, now, by statute law, have power to abate nuisances, sources of filth and causes of sickness, whether arising from contagious diseases or due to an infected water supply. In the early history of health boards very little is said regarding diphtheria and scarlet fever. The etiology of typhoid fever at that time was not known, and, therefore, very little attention was paid by local boards of health to the water

supply. The cause of cholera was not known, and, therefore, very little was done in preventing epidemics of this disease. Smallpox, however, as it was the most dreaded and fatal disease of the early part of the nineteenth century, did receive great attention at that time. In 1802, the Boston Board of Health instituted experiments remarkable for their accuracy to demonstrate the protective power of vaccination. These experiments were unique in their nature and are worthy the careful consideration of any one interested in this subject.

In the Acts of 1886, Chapter 104, Section 4, the powers and duties of the State Board of Health are thus defined:

"The State Board of Health shall take cognizance of the interests of health and life among the citizens of the Commonwealth. It shall make sanitary investigations and inquiries in respect to the causes of disease, and especially of epidemics and the sources of mortality and the effects of localities, employments, conditions and circumstances on the public health, and shall gather such information in respect to those matters as it may deem proper, for diffusion among the people. It shall advise the government in regard to the location and other sanitary conditions of any public institutions."

In the Acts of 1894, Chapter 218, Section 4, further duties of the board in case of contagious diseases are thus defined:

"If smallpox or any other contagious or infectious disease dangerous to the public health exists, or is likely to exist in any place within the state, the state board shall investigate the same, and the means of preventing the spread thereof, and shall consult thereon with the local authorities, and shall have co-ordinate powers as a board of health, in every place, with the board of health thereof or with the mayor and aldermen or the selectmen, if no such board or officer exists in such place."

One very important duty of a board of health is that regarding death certificates. It is by careful supervision of these that frequently the prevalence of any disease in a given locality can be determined.

A second important duty of the board is the supervision of the water supply. Typhoid fever and cholera are disseminated by a polluted water supply. The history of Boston before and since the introduction of Cochituate water abundantly proves this. In Boston, for instance, before there was a general supply of water from a non-infected locality, the ratio of deaths from typhoid fever was very large. For the four years from 1846 to 1849 the average rate of mortality from this disease was 17.4 per 10,000 of the population; after the introduction of Cochituate water in 1848 the rate commenced to decline, so that from 1850 to 1854, inclusive, the average was 8.2, less than one half as great as in the previous four years. Since 1854 the rate has, with one exception, that of the semi-decade from 1870 to 1874, inclusive, gradually diminished to 1.96 per 10,000, the rate for 1905.

In the cholera epidemics of 1832, 1849, 1854 and 1866 the dangers of an infected water supply are manifest. The history of the outbreaks of this disease in Hamburg in 1892, as compared with Altona, is an apt illustration of this fact. The water supply of Hamburg was taken immediately from the Elbe without proper filtration; the supply of Altona was from the same source, but before the water was used, it was subjected to very careful filtration. In Hamburg there was a frightful epidemic of cholera; in Altona, a short distance from Hamburg, there were only a few cases of the disease. Hamburg, unlike most cities, has learned wisdom from experience, and has now one of the most elaborate and perfect systems of water filtration in the world.

A third important duty of a board of health is a medical examination of dairies and of the men employed in these dairies; for it has been demonstrated time and time again that a man ill with walking typhoid may infect the milk so as to cause an outbreak of this disease. Some five epidemics of typhoid fever in Massachusetts, of more or less severity, have been traced to infected milk supplies. As bearing on this fact, it is of interest to note that in the foreign cities where the ratio of deaths from typhoid fever is much lower than in this country, there is a most rigid and careful supervision of the milk farms, both as to their sanitary condition and as to the health of the employees. In London, for instance, where typhoid fever is comparatively rare, large dairy companies have been formed whose supply of milk is based on most minute and rigorous regulations. To prevent the spread of infectious diseases by milk, the farmer is required by his contract to call a physician if any person employed in his dairy is taken ill. If the disease is infectious, the secretary of the company must be at once informed, who will indicate the measures to be taken. In the event of serious disease the delivery of milk from the farm is forbidden. Arrangements are made with local medical officers of health to obtain information as to each case of infectious disease arising in the neighborhood of a dairy. In Berlin, also, there are stringent regulations regarding persons who have come in contact with any infectious disease having anything to do with milk. Similar observations are true regarding Vienna and Glasgow. In Paris, a large proportion of the milk comes from dairies situated in the city. The employees of these dairies are subjected to a careful medical supervision, and it is very reasonable to suppose that this has a decided effect in reducing the death-rate from typhoid fever in that city. In Boston, the milk comes from so many different places and such long distances, and passes through so many hands, that it would be difficult to absolutely trace the source of infection in a given case. But there can be no doubt that in Boston, as well as in many other cities, infected milk may be and is, much more frequently than is generally supposed, a cause of an outbreak of typhoid fever. While this statement so far as Boston is concerned may not be capable of positive

demonstration, it is certainly worthy of careful consideration.

A fourth duty of a board of health is the establishment of compulsory notification of all contagious diseases dangerous to the public health. This was established in England quite a number of years ago and was known as the Compulsory Notification Act, and for a time was bitterly opposed not only by the laity but also by physicians. It was claimed that it interfered with private rights; that it was a source of annoyance to the individual; and that it interfered with his ability to earn a living. Some physicians opposed it on the ground that it violated professional etiquette. After much discussion the act was finally passed in England, and is now generally enforced. The degree of infectivity should also be an important factor in deciding the question of compulsory notification. Placarding the houses, in certain instances, where there is a case of infectious disease, should be the result of the compulsory notification. For over a hundred years a compulsory notification of smallpox has been required. In Boston it was not until 1877 that notification was required in cases of scarlet fever. In 1878, diphtheria and croup were placed on the list of compulsory notifications. In 1881, typhoid fever was also placed on this list. Within three years it has been required to report cases of consumption.

A fifth duty of a board of health, and perhaps the most important, is the establishment of isolation hospitals, or fever hospitals as they are called in England, for the care and treatment of patients ill with infectious diseases. A hundred years ago smallpox hospitals were established in nearly every large city, because the fear of smallpox was much greater than that of the other infectious diseases. Some thirty-five years ago Glasgow, which had suffered more than any other city from the inroads of diphtheria, scarlet fever and measles, established the first fever hospital for the treatment of these diseases. In 1862, an act was passed to provide a fever hospital in Glasgow. A beginning was made in the early winter of 1864, and a pavilion hospital of wood on brick foundations, erected, furnished and opened with 136 beds on the 25th of April, 1865; this was the first Municipal Fever Hospital. It must be borne in mind that at that time the population of Glasgow was about 428,231, and that previous to the erection of this hospital there were no accommodations for diphtheria, scarlet fever and measles. These diseases ran riot in the crowded tenement houses. Isolation was impossible; whole families would be swept away by either diphtheria or scarlet fever.

Boston at that time with a population of 192,318 had no provision for infectious diseases other than smallpox.

The effect of the first municipal hospital at Glasgow, which, as has just been stated, was opened on the 25th of April, 1865, was such in diminishing the death-rate from infectious diseases that a large estate was purchased for hospital purposes. On this estate was erected a pavilion hospital capable of accommodating some four or five hundred patients. There was also a laundry and disinfecting plant where bed linen used by patients ill with infectious diseases treated at their homes could be sent to be disinfected and washed. The hospital itself was opened the latter part of 1870, and is known as the Belvidere Fever Hospital of the city of Glasgow.

The health authorities of Glasgow, not satisfied with the hospital accommodations at Belvidere because they were unable at certain times of the year to give each patient 2,000 cubic feet of air space, and because they were unable to vacate certain wards for six months for purposes of disinfection and renovation, decided to purchase land for a third fever hospital known as the Ruchill Hospital, which was opened by her Royal Highness Princess Christian on the thirteenth day of June, 1900. The entire cost of the Ruchill Hospital was about $1,250,000, and it will accommodate about 440 patients, allowing upwards of 2,000 cubic feet to each bed.

It is, therefore, evident that Glasgow is more liberally supplied with hospital accommodations for infectious diseases than any city in this country; or, to state it in a different way, there are beds for patients ill with infectious diseases for 9.79 out of every 10,000 of the population. This is a magnificent work in sanitary science, and has been a very important factor in lowering the death-rate of Glasgow to an astonishing degree. It is well to remember that the population of Glasgow in 1900 was 755,730, only about 200,000 more than that of Boston.

In London, the first fever hospital or hospital for infectious diseases under the charge of the Asylums Board was opened the last of September, 1871, but patients ill with diphtheria were not admitted until the 23d of October, 1888. Since the opening of the first hospital and the others that have been opened from time to time, there have been treated, to Jan. 1, 1901, 244,206 patients, 161,646 of whom were ill with scarlet fever; 48,529 had diphtheria. Typhus fever, which is always present to a greater or less extent in England, was represented by 2,351 patients. Typhoid fever, or enteric fever, as it is termed in England, caused the admission of 15,632; and there were admitted patients ill with other diseases, 16,048. It is interesting to note the diminution in the death-rate of diphtheria. In 1888, the death-rate from this disease was 59.30%. In 1889, it was 40.74%, but there was no marked diminution in the percentage until 1894, when the death-rate was 22.85%, co-incident with the use of antitoxin. In 1896, when antitoxin was more generally used, the rate was 17.69%. In 1900, the percentage was 12.27. Nine of these fever hospitals in London and one large convalescent home are under the charge of the Asylums Board. They are situated in different sections of the city, many of them in the outlying portions. All of them are in the centers of large tracts of land, so that they have an abundant supply of fresh air. [The names are as follows: the Eastern Fever Hospital, the North Eastern, the North Western,

the South Western, the Fountain, the Grove, South Eastern, Park and Brook Fever Hospitals.] What immediately attracts a hospital man from this side of the water is the bountiful supply of air space: 2,000 cubic feet to each patient and fifteen feet of wall space. A second thing that also attracts his attention is the number of vacant wards, purposely kept vacant until an emergency arises for their use, or until the time has come to empty a ward for disinfection and renovation; a condition of things that has not been reached in this country. In London nine individuals out of every 10,000 of the population can be provided with good hospital accommodations, if ill with an infectious disease.

Previous to 1888 there was no special provision in Boston for the care of patients ill with diphtheria and scarlet fever, but as physicians viewed with dismay the constantly increasing prevalence of these diseases it was decided by the trustees of the Boston City Hospital in 1887 to erect two pavilions for this special purpose.

It is an interesting fact that the Board of Trustees of the Boston City Hospital established the first separate hospital for the treatment of infectious diseases in this country. This is known as the South Department of the Boston City Hospital, and was opened for the admission of patients Aug. 31, 1895.

In the twenty-fifth annual report for 1893 of the State Board of Health of Massachusetts, an article was published detailing the advantages of isolation hospitals, together with some of the measures which have been taken in other countries for their establishment and maintenance. When the report was written the provision for the separate treatment of infectious diseases in this state was very limited. The continued prevalence of this class of diseases, together with the rapid increase of population and of the consequent density in the cities and large towns, brought the importance of the subject more and more forcibly to the local sanitary authorities.

In 1894, an act was passed by the legislature bearing on this point. The text of the act is as follows:

ACTS OF 1894, CHAPTER 511.

"SECTION 1. In any city in which no suitable hospital accommodations have been provided for the care and treatment of persons suffering from contagious diseases dangerous to the public health, the board of health of such city may address a communication to the mayor thereof, stating that, in the opinion of said board, the safety of the inhabitants of the city demands that suitable accommodations should be provided for the reception and treatment of persons suffering from such diseases, other than smallpox and those of a venereal nature. The mayor shall forthwith transmit such communication to the city council and the city council shall forthwith order such hospital accommodations to be provided and shall make the necessary appropriations therefor.

"SECT. 2. Every city in which hospital accommodations have been provided in accordance with the provisions of this act shall make an annual appropriation for the maintenance of such hospital accommodations, and said appropriation shall be expended under the direction of the board of health, unless otherwise ordered by the city government."

As a result of an investigation of the State Board of Health in 1899, regarding the existence of hospitals for infectious diseases in Massachusetts, it appeared that in ten cities of this state and in the town of Brookline there was at that time provision for the reception of persons ill with infectious diseases except smallpox. Nine of these hospitals are in cities having a population of over 30,000 each. Four of these are supported by public funds, four by private funds, and three by both. In only three or four of the cities, and the town of Brookline, are the hospitals under the management of the local boards of health. In other cities the hospitals are managed by independent boards of trustees.

In the state of Massachusetts, as a whole, there are accommodations for 1.58 persons ill with an infectious disease out of every 10,000 of the population; in Boston there are accommodations for four out of every 10,000 as compared with London with a ratio of nine out of every 10,000, or with Glasgow with practically the same ratio.

The diagnosis of a mild attack of an infectious disease is frequently a difficult matter, but it is the mild and atypical forms that cause epidemics and not the severe and typical cases.

A mild attack of smallpox is of greater danger to the community than a severe attack. The only reason that there are not more mistakes made in diagnosis in this disease is due to the fact that smallpox at the present time is an extremely rare disease.

It is unnecessary in this paper to advance any argument in favor of vaccination, its protective power being so thoroughly well established. It is well, however, to appreciate the fact that vaccination eight days after exposure to a case of smallpox does not mitigate the disease. The importance, therefore, of vaccinating immediately on exposure and then forty-eight hours later to repeat the operation, so that if the first attempt is not successful, the second may be, is evident. It has been demonstrated that, if the vaccine vesicle arrives at maturity before the onset of the variolous symptoms, the disease will be modified and in some instances prevented. Well-vaccinated communities never have epidemics of smallpox, as is evidenced by the history of the German Empire.

Diphtheria. — The importance of a bacteriological examination in all cases of suspicious sore throat and where there is a profuse nasal discharge cannot be overestimated. Much has been said about the inaccuracy of cultural diagnosis, and while mistakes may be made in the laboratory, the chances of error are very much less in cultural diagnosis than in the clinical. One great source of error is carelessness in taking

the culture. The swab is simply put into the mouth and does not come in contact with the membrane. The swab should be rubbed near the edge of the diphtheritic membrane and not over the center of the patch. Sometimes the swab is not rubbed sufficiently on the surface of the culture medium and consequently there is no growth. These may seem trivial matters, but as accuracy of diagnosis is all important, it is well before criticising the work of the laboratory to be sure that the critic himself is not at fault. The reaction of the culture medium is sometimes the cause of a mistake, as the serum may be acid or very strongly alkaline. The bacilli of diphtheria grow more abundantly and more characteristically on serum that is neutral or very slightly alkaline. Sometimes the serum is found to be perfectly dry, and when in this condition the growth is disappointing, as a certain amount of moisture is necessary for the growth of the organism. To sum up the whole matter in a few words: It can be said that in a given case, if the culture medium is of the proper reaction, if there is a sufficient amount of moisture; if the culture is taken with care, and the tube is placed in the thermostat within a short time after it has been inoculated and allowed to remain there for at least eighteen hours, the results will be satisfactory.

Some years few ago the writer made an examination of 500 throats in which the clinical diagnosis was doubtful, but there was a suspicion of diphtheria. In this investigation it was found that about 40% of the cultures contained the bacilli of diphtheria. It must be borne in mind that the diagnosis of diphtheria in these cases would not have been tenable without the aid of cultures. It was also noticed that in many instances a positive culture was obtained twenty-four or forty-eight hours before any membrane appeared. The importance of taking cultures in nasal diphtheria of a mild type cannot be too strongly emphasized, for this type of the disease in which a diagnosis is impossible without the aid of the microscope is responsible for the prevalence of diphtheria in the community. If these mild cases of diphtheria in the schools could be detected, there would be a marked diminution in the ratio of morbidity of this disease. In laryngeal diphtheria, however, cultures are frequently of no avail because the membrane is situated so far down that it is impossible to reach it with the swab, and, therefore, the diagnosis must be made from the clinical symptoms.

The statement has been made that the bacillus of diphtheria is frequently found in cultures from the throats of healthy individuals who have not been exposed to diphtheria. Loeffler found this organism 4 times in the examination of cultures from 160 well children. Park and Beebe found it in 8 out of 330. Kober found this bacillus 5 times in cultures from 600 individuals. Denny,[1] of Brookline, Mass., found the organism of diphtheria only once out of 235 cultures from normal throats. The writer examined 130 throats with this point in view, and in no instance was an organism found that gave the same staining reaction as the bacillus of diphtheria. In a few instances, however, bacilli were found having morphologically a marked resemblance to the organism of diphtheria, but the differentiation was easily made by the staining and cultural peculiarities. In these 1,455 examinations by different observers in only 18 instances were the bacilli of diphtheria found, giving a percentage of only 1.23.

The statement has been made that the bacillus of diphtheria is very frequently found in the throats of perfectly well persons who have the care of patients ill with diphtheria. My experience is the opposite of this. In order to show that the organism is not found, as a rule, in the throats of attendants of patients ill with diphtheria cultures were taken from the throats of 120 nurses on duty in the diphtheria wards of the South Department of the Boston City Hospital, and in no instance was the bacillus of diphtheria found.

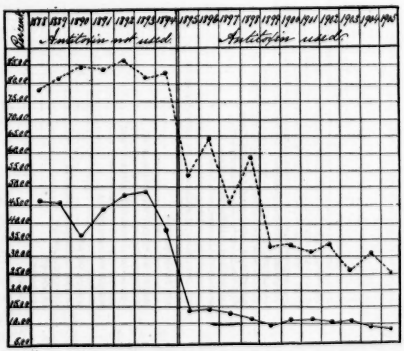
Previous to the discovery of Klebs and Loeffler the question of the release from isolation in a case of diphtheria was a very difficult one to decide. By means of cultural examination the physician is now able with a certainty to say that the patient is free from infection. Two negative cultures from the throat and from the nose should always be required. In certain rare instances the bacillus may remain in the throat for a very long time, but in these cases the organism, as a rule, is non-virulent and the inoculation of guinea pigs will definitely settle the question of virulence. As a matter of fact, a cultural examination shortens rather than lengthens the period of isolation.

So far as alleged " return cases " of diphtheria are concerned, it may be said that they are of

A.

Per cent of mortality of diphtheria at the Boston City Hospital, proper, and at the South Department, from 1888 to 1905, inclusive. Per cent of mortality of intubations for the same time:
From 1888 to 1894, antitoxin not used.
From 1895 to 1905, antitoxin used.

Diphtheria = ——— Intubation = ·····



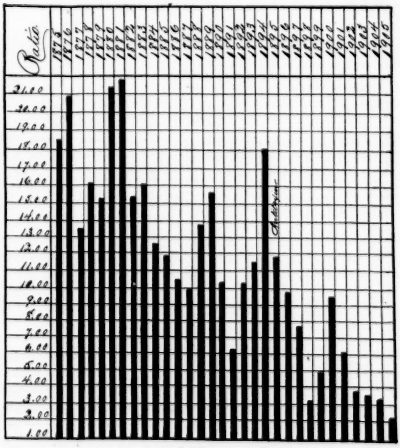
[1] Bacteriology and the Public Health. George Newman, M.D.

such rare occurrence at the South Department of the Boston City Hospital as to prove the very great importance of cultures for discharge, as in no other way can it be definitely shown that the individual is free from infection. Cultures for the release of patients from isolation should be commenced ten days or a fortinght after the disappearance of the membrane and the cessation of the discharge from the nose. It is a waste of time and labor to commence taking cultures any earlier, and if the condition of the patient is satisfactory, it is unnecessary to wait any longer.

In 1894, antitoxin commenced to be used to a somewhat limited extent. Like everything new in medicine it required some little time for medical men in this country to become convinced of its value in the treatment of diphtheria. Without going into a lengthy account of the advantages to be derived from the serum, a glance at Chart A, which gives the percentage of mortality of diphtheria of all types at the Boston City Hospital, proper, from 1888 to 1894, and in the South Department from 1895 to 1905, inclusive, may be of interest. The broken line represents the laryngeal cases, and it will be seen that previous to 1895 the death-rate from this type of the disease was extremely high; that in 1895 the

B.

Ratio of mortality of diphtheria per 10,000 of the population, in Boston, from 1875 to 1905, inclusive.



Average ratio of mortality from 1875 to 1894, 14.61.
Average ratio of mortality from 1895 to 1905, 6.

September of which year the South Department was opened, the death-rate commenced to fall in a marked degree. Or, to put it in another way, considerably more than three fourths of the patients ill with larygeal diphtheria, before antitoxin was used, died. Since antitoxin has been used, nearly three fourths have recovered. By following the full black line, which represents all the types of the disease, it will be seen that the death-rate previous to 1895 was about 45%; that since 1895 it has been about 10%.

Chart B shows the ratio of mortality of diphtheria per 10,000 of the population in Boston from 1875 to 1905, inclusive. Without taking up each year in detail it will be seen that, in 1894, 18 people out of every 10,000 died from diphtheria. In 1905, two and a fraction died. The effect of antitoxin in the operative cases of diphtheria is shown in Chart C, an examination of which shows that there has been a very marked diminution in the mortality rate in this type of the disease since the advent of antitoxin.

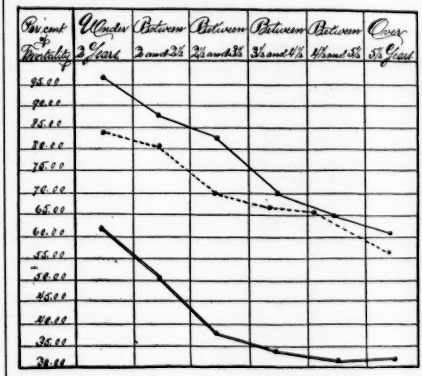
Scarlet fever. — The diagnosis of a severe attack of scarlet fever after the appearance of the eruption is not particularly difficult. The diagnosis of a mild attack of scarlet fever is frequently very difficult, but a careful examination of the throat and an appreciation of the peculiar appearance of the tongue will, in most instances, be sufficient to enable the physician to arrive at correct conclusions. There are cases, however, in which the symptoms are so slight that it is impossible, no matter how much experience a man may have had, to decide definitely for or against the existence of scarlet fever in a given case. The only safe course to pursue is to isolate the patient for a certain length of time until he either does or does not desquamate, although the absence of desquamation is not absolute proof that the patient may not have had scarlet fever.

The prevalence of scarlet fever in the community is not due to the severe and therefore recognized types of the disease, but is due to the

C.

Percentage of mortality of tracheotomy cases and of intubation cases without antitoxin, and of intubation cases with antitoxin.

Bourdillat's Tracheotomy Cases = ———
Waxham's Intubation Cases = ...
South Department Intubation Cases = ═══



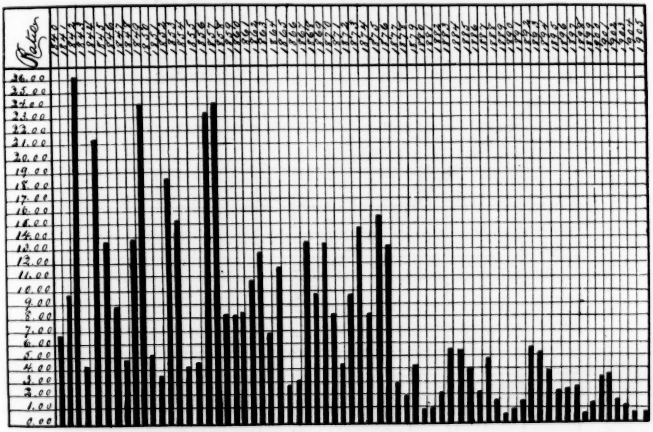
The percentages of Bourdillat's tracheotomy statistics are estimated on 1,024 operations.
The percentages of Waxham's intubation cases are estimated on 1,072 operations.
The percentages of the South Department intubation cases are estimated on 1,671 operations.

mild and unrecognized forms, as children suffering from which attend the public schools and cause epidemics of the disease.

Chart D gives the ratio of mortality of scarlet fever per 10,000 of the population in Boston for sixty-six years. It will be seen that previous to 1878 scarlet fever was a very important factor in increasing the death-rate of Boston; that since that time, although there have been frequent outbreaks of the disease, there have been no frightful epidemics like those in 1842, 1848, 1856 and 1857. It is also worthy of note that since 1895, when the South Department was opened, there has been no general epidemic of scarlet

D.

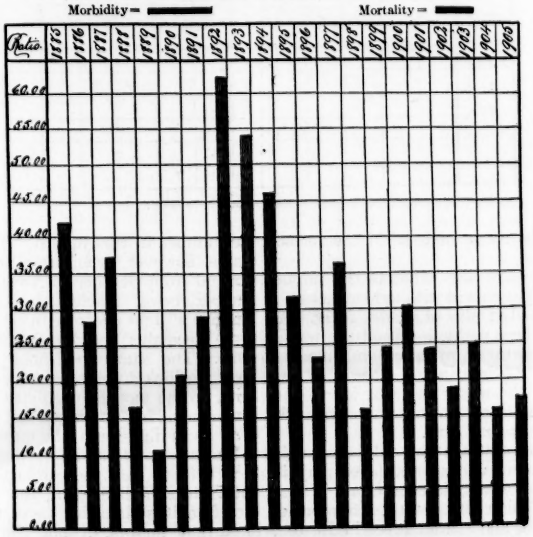
Ratio of mortality of scarlatina per 10,000 of the population, in Boston, for sixty-six years, 1840 to 1905, inclusive.



Since 1895, when the hospital was opened, there has been no general epidemic of scarlatina in Boston, as compared with previous years.

E.

Ratio of morbidity and ratio of mortality of scarlatina, in Boston, per 10,000 of the population, from 1885 to 1905, inclusive.



Average ratio of morbidity from 1885 to 1894, inclusive, 34.84.
Average ratio of morbidity from 1895 to 1905, inclusive, 24.25.
Average ratio of mortality from 1885 to 1894, inclusive, 2.99.
Average ratio of mortality from 1895 to 1905, inclusive, 1.53.

fever in Boston as compared with previous years.

Chart E shows the ratio of morbidity and the ratio of mortality of scarlet fever in Boston, per 10,000 of the population, from 1885 to 1905, inclusive. In 1892, 62 people out of every 10,000 in Boston had an attack of scarlet fever. In 1905, 17 people out of every 10,000 were ill with this disease. It is a significant fact as bearing on the importance of isolation hospitals that since 1895, when the South Department was opened, the ratio of morbidity of scarlet fever has diminished to a considerable extent; for instance, compare the years 1892, 1893 and 1894 with any of the subsequent years, and in no instance is the ratio of morbidity as high as in the former years.

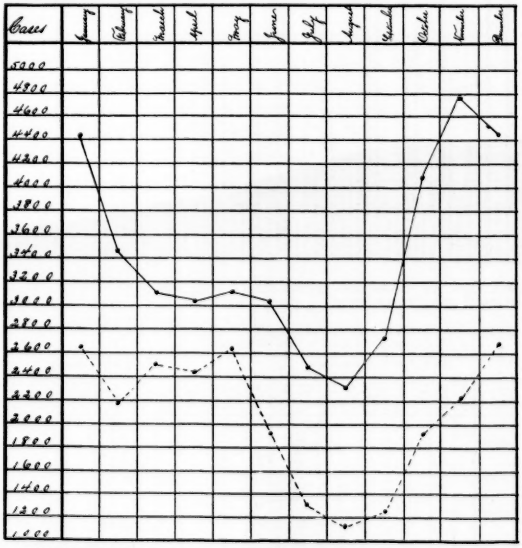
Allusion has already been made to the importance of isolating patients ill with mild attacks not only of diphtheria but also of scarlet fever. As the majority of these patients attend the public schools, the importance of a careful medical inspection of the children in the schools, as was recommended by the writer in 1891, is evident. It is a source of gratification that this suggestion has at last begun to bear fruit.

In order to demonstrate the rôle that mild attacks of diphtheria and scarlet fever play in the prevalence of these diseases Chart F has been prepared. This chart gives the number of cases of diphtheria and scarlet fever in Boston, by months, reported to the Board of Health from 1890 to 1905, inclusive, a period of sixteen years, comprising 41,199 cases of diphtheria and 24,078 cases of scarlet fever. By following the curve of the full black line which represents the cases of diphtheria, it will be seen that in the month of January for sixteen years the number of cases of diphtheria was 4,400; that there was a diminution in the month of February; that during the months of March, April, May and June, although there was a slight diminution in the number of cases, it was not very marked. The schools close the last of June, and the diminution from June to July is quite marked. The number of cases reached the minimum in August. The schools open in September, and there is an increase in the number in this month. The greatest increments, however, occur from September to October and from October to November, the highest number being reached in the latter month. There is a slight decrease in the month of December. December and January are practically the same. The same conditions obtain in scarlet fever, the lowest point, as in the case of diphtheria, being in the month of August and the increase commencing in September and ending in December. As in diphtheria, the number in the months of December and January is practically the same. It is evident that meteorological conditions are not factors in increasing the number of cases; therefore, it is plain that these mild cases are very important factors, if not the only factors, in causing the prevalence of these diseases.

F.

Cases of diphtheria and scarlatina in Boston, by months, reported to the Board of Health from 1890 to 1905, inclusive.

Diphtheria = ——— Scarlatina = - - - - -



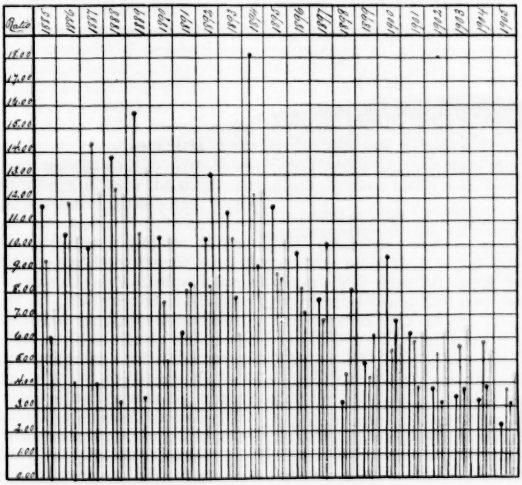
Diphtheria, 41,199 cases. Scarlatina, 24,978 cases.

It is always well to compare the results obtained in different cities. In Boston the percentage of cases of diphtheria treated in the hospital is larger than in New York, Philadelphia and Brooklyn. Chart G gives the ratio of mortality of diphtheria per 10,000 of the population in Boston, New York, Philadelphia and Brooklyn, from 1885 to 1905, inclusive. It will be seen from this chart that Boston, which is represented by the black line, previous to 1895, suffered more from diphtheria than any of the cities taken for comparison. For instance, compare the years 1885, 1888, 1889 and 1894 with any of these other cities, as represented by the colored lines, New York being red, Philadelphia green and Brooklyn yellow; since 1895, with one exception, 1900, it will be found that Boston is lower than any of these other cities. In 1905 Boston is at the bottom of the list as compared with the other cities. This would seem to be a conclusive argument in favor of isolation hospitals.

G.

Ratio of mortality of diphtheria, per 10,000 of the population, in Boston, New York, Philadelphia, Brooklyn, from 1885 to 1905, inclusive.

Boston = ——— New York = ——— Philadelphia = ——— Brooklynn =



In order to accomplish much in the suppression of infectious diseases it is all important that there should be cordial co-operation of the physicians health officers and the public. There is always a certain amount of friction, which is a positive detriment to the well being of the community. The health officer should be specially trained for his duties.

In a paper by Prof. H. C. Ernst, read at the thirty-third annual meeting of the American Public Health Association, the importance of special instruction in medical schools for health officers was strongly emphasized. Foreign countries are very much in advance of us in this particular, and the result is that the investigations of subjects pertaining to public health are on a scientific basis. Much of the work that has been done by local boards of health in this country has been crude and unsatisfactory. It is the duty of health officers, whether members of boards of health or appointed by them, to elevate the standard and increase the knowledge of public hygiene in this country, which cannot be done without the assistance and co-operation of the family physician. It is the duty of the general public to assist the family physician and the health officers in this work.

MEDICAL INSPECTION IN SCHOOLS.*

BY ROBERT W. LOVETT, M.D., BOSTON.

THERE are certain propositions relating to the public health which would seem self-evident, but, curiously enough, the community adopts some of them while it neglects others. For example, it is pretty generally agreed that it is objectionable to allow sewage to run into streams or ponds used for drinking water; it is quite generally accepted that plumbing connected with sewers must be ventilated by traps; but with regard to the proposition that children should be placed under the most favorable possible conditions during school life there has been but little interest as expressed by public activity.

In the report of the Board of Education of Massachusetts, dated January, 1906, there were only fourteen towns and cities that had regular school inspection. The movement of school inspection was begun in this country, in Boston, in November, 1894. Governor Guild recommended in his inaugural message in 1906 that there should be a general school inspection in the state, and the legislature of 1906 passed a law

* Read at the Fourth Massachusetts State Conference of Charities, Worcester, Nov. 15, 1906.

requiring school inspection in every city and town in Massachusetts. Here, then, is a movement that dates its beginning twelve years ago in Boston, yet in January, 1906, has been adopted by only fourteen cities and towns and is now required in every city and town in the Commonwealth. What are the facts with regard to this school inspection? Is it necessary? And if so, why and what should its limits and methods be?

In the first place as to its necessity. Children are not on the whole favorably affected by school life as shown wherever figures have been collected. In Copenhagen 18% of boys were sickly on entrance, 30% sickly after two years and 40% at puberty. The percentage in girls increased from 12% to 32% in three years. Pilger found that the youth of Germany increased in nervousness from 10% in the lower grades to 60% in the higher. The Danish Government Commission found 29% of schoolboys, 41% of schoolgirls sickly. The Swedish figures show 5% sickly in the first year, 36% in the second and 40% in the fourth. This does not look as if the school conditions of the countries investigated were favorable to health.

The statement is made by President Eliot that in the primary grades of school life 40% of the children are beyond the normal age for that grade and from 20% to 40% in the grammar schools are over the maximum age for that grade. It is well known that mental progress is retarded and mental dullness of a marked degree induced by errors of vision, deficiency of hearing, the presence of a third tonsil and the like. Of 90 incorrigible children in Philadelphia 64% presented physical defects. In New York from March, 1905, to March, 1906, there were 75,000 examinations of school children and 24,000 of the children examined showed defective vision, and 1,600 defective hearing. These and other defects required medical attention in 50,900 of the 75,000 examined. A claim for the usefulness of school examination can be based alone on the fact that from 25% to 33% of school children show defective vision. To push children with such defects as those mentioned is cruel, uneconomical and useless.

It would seem warrantable to conclude from the figures presented that school inspection is useful. It is not very expensive. In Boston the expense was $17 for 1,000 of the inhabitants, making an expense of $10,200 in one year in Boston. The question is, if this is not really money economically spent and if more than that is not saved in hospital and board of health expense. Dr. Durgin estimated that the whole cost of medical inspection has been saved to the city at the City Hospital.

The generally accepted method of school inspection is to notify the parents of the child's condition and to leave the responsibility with them, where it belongs. Hospitals are at hand where the child may be taken for advice from specialists, and for general ailments they are treated by their family physician. In many cities nurses have been added to follow up the children at home, and most favorable reports of their usefulness have come where they are employed.

The functions of school inspection should be as follows: First, to detect infectious disease in its early stages, thus cutting down the danger of contagion; second, to detect and cure or provide for defective children; third, to improve school conditions.

First, to detect infectious disease in its early stages appeals most to the general public and is the most powerful means of pushing the cause. No one wishes his child to contract scarlet fever, measles, diphtheria or tuberculosis. There is no room for discussion, and detection of these diseases in their early stages is acceptable to every one. In New Bedford in one year when school inspection was in force 1,093 notices of infectious disease were reported to the superintendent of schools. The next year when no such medical inspection was in force 170 cases only were reported to the same office. The cause of the suspension of medical inspection was a disagreement between the board of health and the city council as to the amount of the appropriation. It is quite clear that the schools are one probable source of the spread of infectious disease. From the report of the Committee on School Hygiene of the Worcester Physical Educational Association I quote as follows: "Extensive studies indicate that over 90% of the deaths from contagious diseases, such as diphtheria, scarlet fever, whooping cough and measles, occur before the age of ten. The detection of these diseases early and the isolation of the affected child is an evident matter of public utility."

The second function of school inspection is the recognition of the fact that all children are not alike and that mental dullness and school backwardness are most often the result of some physical defect. Such defective children should be made right, or if this is not possible should be especially provided for. This is such a well recognized function of school inspection that it requires only to be mentioned. I quote from a letter printed in the report of the Civic League on "School Inspection":

"A boy of five attended school a half year without learning even one letter. His teacher concluded that he was deficient in brains, and questioned whether he ought to be allowed to attend longer, a not unusual conclusion in such cases. An examination of his eyes, however, showed that they were astigmatic to a degree which made it a physical impossibility for him to distinguish one letter from another. The defect was remedied, and he then proved to be able to learn as well as his fellows.

"A cabinet maker, a very superior workman, who was at my house recently, told me that as a boy he was a failure at school, and that when he tried to learn the carpenter's trade at the age of sixteen he failed until he accidentally discovered, and then supplied, his need of glasses for nearsighted eyes, after which his success was immediate. 'Why, I had never seen a line,' he said,

' only a blur, and how could I cut to that? ' Had his defect been discovered a few years earlier it would have saved him some years of humiliating failure, and might have changed his whole life."

The third function of adequate school inspection must be the preventive or remedial side. It is of little use to find out that 26% of school children have lateral curvature of the spine, and that it progresses during school life from about 18% in the lower grades to 33% in the higher, unless we do something about it in the way of providing proper school furniture as has been done on a large scale in Boston by the School House Commission with satisfactory results. The school furniture in general use is, as a rule, badly conceived, adapted with little or no care to the individual child and calculated to induce improper attitudes and to favor lateral curvature.

It is obvious from the figures already given that school conditions in general are not favorable to health and that efficient inspection might be provided for making them more so. The importance of proper light, air space and ventilation need not be dwelt upon. The whole curriculum must be investigated. Is it well arranged? Is the progression of studies a proper one? Are the children pushed too hard? Is sufficient stress laid on frequent recesses, manual training and recreative studies? As an example of the problems to be met is the following one suggested by Dr. T. F. Harrington, of Lowell: "Children grow not at a uniform rate, but by fluctuation. The greatest increase in weight occurs in the winter, the greatest growth in height from March to August. Yet in the spring term, when the child's resistance is least on account of his growth, come the examinations and public exhibitions." This fluctuation of growth was not known in 1630 when our present school system was imported from England, but it is known now, and yet we do not change our examinations to January when height and weight are balanced and the child in his best condition, but keep them in June. The diminution of fatigue is not studied as it should be, nor is the question of the value of gymnastic exercises as given a settled one.

An experiment tried in England is suggestive. One of the schools was divided into two parts, half of the boys working for the regular school hours and the other half working only one half of the time and playing out of doors the other half. At the end of the school year the examination showed that the half who worked all of the time were behind the others in their studies. The value of nature study, manual training and recreative studies, such as geography and music, must be formulated and the whole curriculum investigated from a modern point of view.

Finally, it may be said that the question of school inspection refers not entirely to the public schools, for in them on the whole the hygienic conditions are quite as good, if not better, than they are in most private schools conducted in dwelling houses, badly lighted, badly ventilated and in no way adequate to their purpose or properly equipped.

The movement in favor of school inspection is a recent one. We are, I believe, on the verge of a reform of great importance. Let us hope that the community may be led to see that decent school conditions and the health of their children are as important to them as proper plumbing in their houses or the protection of their drinking water. It would seem that publicity was the best means at our disposal to create public sentiment; and above all let us not forget that the medical inspection of schools properly formulated should have a strong preventive aspect.

Clinical Department.

A CASE SIMULATING CIRRHOSIS OF THE LIVER, DUE TO CARCINOMA OF THE KIDNEY AND VENA CAVA.

BY CHARLES F. WITHINGTON, M.D.,
Visiting Physician, Boston City Hospital.

Wm. D., age fifty-six; grinder; born in England. Entered hospital, May 15, 1906. Drank very hard as a young man. Of later years drinks "ale and beer in moderation."

Thinks he was well until ten weeks ago, when he became dyspneic and his legs gave way under him. He continued to work off and on, being fairly comfortable when sitting, but unable to climb stairs. Considerable digestive disturbance, belching, nausea, vomiting, constipation. Has noticed swelling of legs only recently.

Physical examination. — Well developed and nourished. General condition poor; slight jaundice. Arcus senilis and some arterial rigidity. Pulse, fair strength. No general glandular enlargement. Abdomen distended, not tender, contains free fluid; dilated, superficial veins. Liverdullness fifth rib to level of umbilicus, 18 cm., edge distinctly felt. Splenic dullness 12 cm., edge not felt. Moderate edema of both legs, more on right. Superficial veins slightly distended. Knee jerks absent. No ataxia. No Romberg symptom. Heart dullness at upper edge, third rib, 2 cm. to right and 14 cm. to left of median line. Apex in fifth space. Sounds of fair strength. No murmurs. Fluid in both pleuræ, right from mid scapula, left from angle.

The first urinary examination showed nothing abnormal, except that the total amount was at first diminished. This increased and on the eighth and ninth days was 66 and 64 oz. respectively. Then it rather rapidly fell to 21 oz. On that day the specific gravity was 1,024, albumin slightest possible trace, an occasional hyaline cast with renal cells adherent. Few small and large round cells, the latter occasionally fatty. Calcium oxalate crystals. No blood seen. The edema steadily increased, the right leg being the more swollen. The fluid in the abdominal and pleural cavities also increased, and the patient rather rapidly lost strength. He became incontinent and the heart action grew weak. Death occurred May 28.

In view of the absence clinically of evidence of sufficient disease either of heart or kidneys to account for the great edema, because of the portal obstruction, the dilated veins, large liver and the strongly alcoholic history, the diagnosis of cirrhosis of the liver was made.

AUTOPSY.

The autopsy was made five hours post-mortem. The edema of the legs is noted as then being slightly

greater on the left side instead of the right, as at first. There was also an area of ecchymosis 14 by 20 cm. on the left leg.

The abdominal wall was tense and contained a moderate amount of yellow fat. Both the deep and superficial veins were distended, the former more markedly, measuring 4 cm. in diameter. The peritoneal cavity contained 1 liter of clear straw-colored fluid which solidified on heating. The omentum extended well into the pelvis and its veins stood out prominently. Mesenteric lymph nodes not increased in size or consistency. Diaphragm to fifth space left, fifth rib right.

The pleural cavities had a few thin firm adhesions. Scattered throughout the parietal pleuræ, most marked along the course of the ribs, were numerous irregularly distributed small, round, jet-black, smooth areas, "anthracosis"; (more properly siderosis, as the patient, it will be remembered, was a grinder by trade). In a small area in the right anterior parietal pleura where the latter is reflected over the pericardium, the two layers of the pleura were united by many firm, fibrous bands. Here the small jet-black areas above described were more numerous, being closely packed together.

The heart was not abnormal, save for a few scattered, small, thickened areas along the mitral curtain, and moderate myocardial degeneration. The coronaries were normal.

The lungs.—Scattered throughout the pleuræ of both lungs were very many small, smooth, flat, jet-black areas, similar to those seen on the parietal pleura. There was a small, healed, tubercular focus in each apex. Otherwise, the lungs were normal, save for some congestion and edema of the lower lobes.

The spleen weighed 320 gm., and was rather firmer than normal.

The chief interest, outside the pleura and lungs, above described, lay in the gastro-intestinal tract, the kidneys and the large veins. Scattered throughout the gastro-intestinal tract were numerous irregularly distributed and shaped small, submucous, deep red spots, in which small vessels could be easily seen. The vessels about the cardiac end of the esophagus and about the anus were moderately dilated. The portal vein was patulous throughout and somewhat increased in size. The smaller branches everywhere stood out prominently.

The liver weighed 1,933 gm. The surface was smooth. On section it had a very marked mottling of a brownish red and light gray color, the former most marked about the periphery of the lobule. The central veins of the lobules stood out prominently. There was no macroscopic evidence of compensatory circulation between the liver and diaphragm through the vessels of the suspensory ligament. Gall bladder normal. Ducts patulous.

The kidneys weighed 195 gm. Cortex, 5 mm. There were slight remains of portal lobulation. Capsule stripped with difficulty, leaving slightly roughened surface. Cortex light gray throughout. Small vessels stood out prominently. Malpighian bodies easily visible as glistening points; vessels of pyramids easily visible and somewhat distended. A few scattering, definitely walled areas which contained a small amount of thin, clear fluid (retention cysts) were seen throughout the pyramidal region.

The left renal vein was patulous to within 1 cm. of its opening into the vena cava. Here the vessel was plugged by a soft red mass similar to that seen in the vena cava (to be described below). At the free end of the mass, within the left renal vein, a small amount of blood was adherent. The left spermatic vein was distended. The *right* kidney was increased in size and firmly united to its surrounding tissues. It was removed, together with the vena cava and the liver. Throughout the immediate perirenal tissues there were many small distended veins, extending in all directions through the retro-peritoneal tissue of the region. The right kidney measured 14 by 10 by 5.5 cm. Its surface was roughened, most markedly so throughout its lower half, where there were several round, soft, protruding areas. The upper half was not so rough, and felt much firmer. The right adrenal was removed without difficulty. The capsule of the right kidney adhered firmly to the underlying kidney substance. The right renal vein stood out prominently and felt as if filled with an elastic material.

On section of the kidney, the lower half contained several round, grayish, protruding, soft areas, the contents of which were rather granular, especially in their central portions. These were circumscribed and between them the tissues were much firmer and white in color. The upper half of this kidney contained many fairly well circumscribed pale red and light gray areas. In contrast with the lower half the upper was quite firm throughout, less so in the red areas. Left ureter patulous.

The right renal vein contained a light red, soft, stringy material, filling it completely and extending outward into the vena cava, which stood out prominently and felt soft. Upon opening the vena cava a very soft, stringy, pale red mass spread out over the edges of the cut. This material extended from a short distance below the entrance of the right renal vein to a point a short distance beyond the exit of the vena cava from its groove in the liver. Below the lower point of this occluding mass there was firmly adherent to the wall of the vena cava a thin, elastic material the surface of which was dark red and the deeper portions a light gray. Adherent to the vena cava in the region of the renal vein was an enlarged lymph gland which on section contained a soft, pale red material. These lesions of the kidney, extending into the renal veins and vena cava proved histologically to be carcinoma.

We have then, in this case, as a cause for the ascites and edema of the legs, a carcinomatous growth of the right kidney, with carcinomatous occlusion of the inferior vena cava, the right renal vein, the proximal portion of the left renal vein.

Dr. Mallory kindly furnishes the following description of the new growth:

"Microscopically the tumor consists of epithelial cells covering delicate branching stalks of connective tissue in which run large thin-walled blood vessels, and lining also the cysts of various sizes in which the papillary masses lie closely packed together. The epithelial cells are fairly large, of a short cylinder form and contain usually but one, occasionally multiple nuclei. The cytoplasm is abundant and stains rather intensely with eosin. The nuclei have large distinct nucleoli.

"The tumor may be classified as a papillary adenocystoma or as the papillary form of growth of a carcinoma. The latter is the view adopted by Ribbert."

The original site of the carcinoma in this case would appear to have been the right kidney, in its lower half. Thence it grew into the right renal vein to the vena cava inferior, crossed this, and established itself for a very short distance at the

mouth of the left renal vein. It then extended up the vena cava far enough to produce an obstruction to the hepatic vein, and when this point was occluded, there followed the dilatation of the portal vein, which extended to all its branches, the superficial and deep epigastric, the esophageal and hemorrhagic veins, with the resultant ascites and anasarca.

PYELITIS COMPLICATING PREGNANCY.*

BY J. B. SWIFT, M.D., BOSTON.

WITHIN the past few years a number of cases have been reported which are of special interest to the obstetrician and surgeon. I refer to cases of pyelitis complicating pregnancy. Undoubtedly there have been many of these cases unrecognized, but now that the condition has been brought to the notice of the profession, we will be able to rightly diagnose the disease and recognize symptoms which heretofore have been wrongly interpreted. At the French Congress of Surgery in 1892 Dr. Reblaud reported 5 cases —3 antepartum, 2 postpartum —which he had studied, and described the symptoms which have been common to the cases reported since. These symptoms are, pain in the side (usually the right), increased frequency of micturition, elevation of temperature and pus in the urine.

The urine is usually acid, and, from the bacteriological examinations which have been made, this seems to depend on the infecting bacteria. About all the cases, studied bacteriologically, show the colon bacillus as the cause of the trouble, and the course of the disease to be a descending, rather than an ascending, infection, that is, the infection takes place primarily in the kidney, or its pelvis, rather than through the bladder. It is supposed the infection is brought by the blood, and the reason for its development in the pelvis of the kidney is on account of the changes which are caused in the ureter and pelvis of the kidney by pressure on the ureter by the gravid uterus.

Reblaud says: " Where the ureter crosses the pelvic brim it is compressed by the uterus. This causes a hydronephrosis, and this dilatation, although aseptic, causes modifications and lesions which furnish a place of least resistance for bacterial development."

The pain is usually in the lumbar region and radiates in the direction of the ureter, but that it may be referred to other regions is shown by the fact that some of the cases have been originally diagnosed and operated on for gall-bladder disease, appendicitis and extra-uterine pregnancy. The pain may be constant or intermittent, the remissions being explained by the compression being removed by a change in the position of the uterus. The fever may be slight or high, and accompanied by rigors. Palpation of the lumbar region shows a tenderness of the kidney, or even a fluctuating tumor may be made out. The disease does not show itself much before the fifth month of pregnancy, that is, not until the uterus is large enough to compress the ureter where it crosses the pelvic brim, for it has been shown that while the uterus is in the pelvic cavity the anatomical relations are such that the ureter, under normal conditions, cannot be compressed. The right side is more frequently affected than the left. This is explained by the position which the uterus occupies rather than by the size or weight of the child, it being generally recognized that as the uterus develops it is turned toward the right side, swinging on its longitudinal axis, and thus filling the right oblique diameter of the pelvis. That this development of the uterus, rather than the size of the child causes the compression is claimed, because, in many cases the disease develops before the child is large enough, and before it has any fixed position, that is, in the fifth or sixth month. Then again, the position of the sigmoid flexure on the left side acts as a protection to the left ureter. This view is not universally held, however, as one observer, Albert Sippel, whose original paper I have not been able to read, claims that the developing uterus more easily compresses the left ureter, and reports two cases in which there was complete obstruction of the left ureter by the developing uterus. One would naturally suppose that the disease would be more common in primiparæ than in multiparæ, on account of the greater rigidity of the abdominal muscles, but from the reported cases this is shown not to be so.

As to the effect on the course of pregnancy,—several cases of spontaneous premature delivery have been reported, but they seem to have been due to the high temperature rather than to the actual effect of the disease. Most of the cases have gone to term with a cessation of the symptoms when the pressure on the ureter has been removed. The question of inducing labor must be considered in the interest of the woman, and depends on the condition of her health caused by the disease. Where an abscess is diagnosed the question of surgical intervention arises, the point to decide being whether it is better to induce labor, await normal delivery, or do a nephrotomy. The time in the pregnancy and the amount of damage being done will be important factors here. Where drainage through the ureter seems to be sufficient, in view of the fact that these cases apparently recover shortly after delivery, it would seem better not to interfere surgically; but if the drainage is not sufficient then, of course, drainage above the point of obstruction must be furnished. Because the disease has appeared in one pregnancy is no reason for expecting its occurrence in succeeding ones if the pus has entirely disappeared from the urine, but as long as there is pus in the urine pregnancy should be avoided.

The origin of the disease seems to be most frequently connected with some alimentary disturbance. Here is a cause for the development of the colon bacillus, which is then carried by the blood throughout the system, and then being retained in the dilated pelvis of the kidney flourishes here and causes the inflammation. That

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this may be so has been shown by experiments, where, after aseptic ligature of the ureters, streptocci, or colon bacilli, were injected into the blood of the animal, and later were found flourishing in the dilated pelves of the kidneys. That alimentary disturbances may be a factor in the development of the disease gives us a hint in prophylaxis. Constipation being a common trouble in pregnant women it should be our endeavor to keep their bowels in the best possible condition.

When the disease appears our efforts should be directed to see that pressure on the ureter is removed as much as possible, so that there may be proper drainage. This may be done by changing the position of the uterus, having the woman lie as much as possible on the unaffected side. In one of the cases reported by Sippel, there was no pus in the urine at the outset, only the pain in the left side, with the fluctuating tumor. The diagnosis was perinephritic abscess. At the operation it was found that the ureter was completely obstructed by the pressure of the uterus, and the swelling was the dilated pelvis of the kidney. By keeping the woman on her right side, the ureter became pervious, pus was passed through the bladder, the pelvis was sufficiently drained, and shortly after the normal delivery the patient was well. During the acute stage the patient should be kept in bed on a milk diet. The bowels should be kept open, and the pain relieved. Urinary antiseptics have apparently been of service in some cases, the pus disappearing from the urine before the termination of the pregnancy. Pyelitis, of course, may be caused by the infecting material ascending from the bladder. Here, however, we have first to deal with a cystitis, and the pyelitis is seen oftener postpartum than antepartum. I have seen three cases of pyelitis complicating pregnancy, but as my notes in two of them are very scant I will report only the third, regretting that here also the record is not perfect.

Mrs. M., thirty years old, was confined with her first child Jan. 30, 1895. There was nothing unusual about the pregnancy or delivery except that, during the latter part of the pregnancy, the urinary examinations showed considerable mucus in the sediment. She became pregnant again in May, 1897, and, aside from the usual discomforts of pregnancy, was well until Dec. 3, when she was troubled with nausea and insomnia. A report on the urine of Dec. 6 says, "Urine acid; specific gravity, 1,026; no albumin; considerable mucus sediment." On Dec. 13, she complained of a dull aching pain in the right lumbar region, and this continued, with more or less severity, until her confinement on Feb. 28, 1898. There was indefinite tenderness over the lumbar region throughout this time, but at no time when I saw her was there any elevation of temperature. The urinary examinations during this time all report an acid urine, with rather high specific gravity, no albumin, but considerable mucus sediment.

The third pregnancy began in July, 1898, the last catamenial period beginning July 2. She was away from home and I did not see her until Nov. 22, when she told me of her pregnancy and said she had been more comfortable during the early months this time than in the former pregnancies. On Jan. 30, 1899, I saw her because she was having the same kind of pain in the right lumbar region as last time, only much more severe. There was no fever, she was passing her urine frequently, which was said to be dark colored, and on standing deposited a red sediment. There was constipation, and on making a vaginal examination I found the rectum filled with hard feces. The pain in the side was so severe she was given morphia. An enema was ordered and she was given alkaline drinks. The pain continued for two days, requiring $\frac{1}{8}$ gr. codia from time to time to relieve it. The report of the urine on Feb. 3, was, "Reaction neutral; specific gravity, 1,012; trace of albumin by heat and nitric acid; considerable mucus sediment." Pus appeared in the urine on Feb. 7, and after that time there was no more pain. During the rest of the pregnancy she always expressed herself as feeling well and without discomfort, except for the frequent micturition. She had an easy delivery on April 19, 1899, and the convalescence was uneventful. Ten days after delivery all urinary symptoms had disappeared and the urine was normal. From the attack on Jan. 30, until after delivery, Dr. E. S. Wood made many urinary examinations and I will read a few of his records. All the specimens examined by him showed an acid urine and a slight trace of albumin.

Feb. 7, 1899, specific gravity, 1,016; reaction, very acid; albumin, 1-40%; sediment, chiefly pus, some of which is in clumps stained brown by blood pigment, with numerous small round cells. An occasional small fatty cell and compound granule cell. Numerous squamous cells (vaginal). Few blood corpuscles. Remarks: "This sediment looks very much like that of a pyelitis. The pus was not mixed in intimately with the vaginal cells as I would expect with a leucorrhea, and also there are no more vaginal cells than I frequently see when no pus is present. I am unable to find any casts although it is possible that I have overlooked an occasional one in the presence of so much pus. I usually find an occasional cast in cases of pyelitis. It is, of course, possible that the pus comes from some inflammatory condition outside the kidney or urinary passages and is being drained into the pelvis of the kidney. It is also possible that the pus is of tubercular origin, and I have saved some to test for tubercle bacilli, if you so direct." Signed, E. S. Wood.

March 2, "Amount of sediment 2-10 cc. in 15 cc. of urine, equals 1-75 total bulk. Only one group consisting of four bacilli which looked like tubercle bacilli could be found on thorough examination of six cover slip preparations. I do not think this sufficient to warrant a positive diagnosis. I will try again next time, and if you will send me a perfectly fresh specimen will inoculate a guinea pig with the pus, so as to make a sure test."

On March 30, he writes: "Sediment, chiefly pus, free and in clumps. Numerous small round cells, few of which are fatty. Few blood globules. Vaginal cells. This specimen shows an improvement over that of March 15. The urea is 2 gm. more nearly normal. The uric acid has diminished to normal, and the phosphoric acid has increased to normal. The pus and sediment remain unchanged. The sediment has been washed and injected into a guinea pig as was that of the last specimen. This was done for the purpose of having a duplicate experiment going in case the other one failed accidentally." As I have said above, she was confined on April 19, and ten days after all urinary symptoms had disappeared. On May 3, Dr. Wood wrote: "There is absolutely no sign of tuberculosis in the guinea pig inoculated with the pus in Mrs. M.'s urine March 7. This is a perfectly satisfactory test."

In going through the literature I have found 40 cases, my own making 41. Erich Opitz in the *Zeitschrift für Gynäkology*, Bd. lv, 1905, has an article on this subject, but being in German I was not able to read it. An abstract of the paper, however, by Henry Russell Andrews, is in the *Journal of Obstetrics and Gynecology of the British Empire*, vol. viii, November, 1905. Opitz collected 79 cases and added 5 from the Marburg clinic. In a series of 53 cases spontaneous premature delivery occurred 23 times. Of 60 children born, 7 were stillborn or died soon after birth.

In my collection of 41 cases, there were 15 primiparæ, 14 multiparæ, not mentioned 11. The right side was affected 37 times and the left 4. Twenty-eight cases went to full term. Spontaneous premature labor occurred 4 times, premature labor was induced once and in 9 cases, the pus having disappeared from the urine, the patients passed from observation. Nephrotomy was done once antepartum, 4 times postpartum. The colon bacillus is reported 17 times; no bacterial examination recorded in the rest.

PYELITIS IN PREGNANCY AND THE PUERPERIUM.*

BY F. S. NEWELL, M.D., BOSTON.

CASE I. Primipara. Twenty-five years old. Delivered Nov. 19, 1903, in Lying-in Hospital. Pregnancy normal. Labor terminated by low forceps. Easy delivery. Patient catheterized before operation. Convalescence complicated by an acute cystitis with moderate symptoms, which yielded promptly to treatment. Temperature from the third to the sixth day ran from 100 to 102.5; sixth to ninth day, temperature normal. Tenth day patient up; had an attack of severe pain in the right side, with a chill. Patient put back to bed, given ¼ gr. morphia for the pain, with relief. The evening temperature was 104. Practically no pain. Physical examination showed a pale, anemic woman rather poorly nourished. Exquisite tenderness in the right hypochondrium extending through to the lumbar region without muscular spasm. Next day patient comfortable. Urine turbid and showed large amount of pus on microscopic examination. Kidney still exquisitely tender and slight degree of spasm over the quadratus lumborum. Temperature 102; some nausea. For the next three days the temperature varied from 102 to 104. Pain was comparatively slight, but there was a constantly increasing amount of pus in the urine and increasing muscular spasm and rigidity.

Treatment: Large quantities of water and urotropin 7½ gr. twice a day. Light diet.

The local signs, muscular spasm and tenderness over the kidney, grew steadily worse, and the question of operation to drain the pelvis of the kidney was raised. Patient sent to the Massachusetts General Hospital. Seen by Dr. Greenough in consultation. Dr. Greenough advised against operation and in favor of a continued observation. The temperature varied from 100.5 to 104 for the next ten days, more or less dependent on the amount of pus appearing in the urine. The muscular spasm and the tenderness over the kidney gradually decreased. Kidney not palpably enlarged at any time. Following this time the symptoms gradually improved and the patient made a satisfactory recovery, complicated by a lighting up of the left kidney of much shorter duration and much less severe than the right side. At the time of discharge from the hospital, five weeks after the onset of attack, the urine showed a slight trace of albumin and a slight amount of pus. The kidneys were apparently normal on palpation. No tenderness, no muscular spasm.

CASE II. Feb. 3. Primipara. Four months pregnant. Twenty-five years old. Seen in City Hospital, to which she had been admitted with a diagnosis of chronic appendicitis. Complained of some pain in the right iliac fossa. Moderate tenderness in the right hypochondrium in the region of the gall bladder. Urine slightly turbid and showed small amount of pus. Temperature running between 99.5 and 100.5. Blood count, 15,000. Owing to the mortality attendant on acute appendicitis during the pregnant state, operation was considered advisable in spite of the fact that the symptoms were indefinite and pointed rather to the gall bladder than to the appendix. A median incision was made and the appendix examined, found normal and removed. Examination of the other abdominal viscera showed a distended gall bladder and the right kidney questionably enlarged. The median wound was closed and incision made over the gall bladder, which was found distended, but not inflamed. The gall bladder was opened and drained; contained a considerable quantity of biliary sand, but no stones found. The wound closed except for drainage to the gall bladder. Good ether recovery. Temperature promptly dropped to normal. Pain disappeared and the patient was apparently doing well. Blood count dropped to normal. On the fourth day after operation the patient complained of a severe pain in the right lumbar region. Marked spasm developed over the renal region. Urine at this time clear and containing no pus. Pain increased, requiring large doses of morphia. Some vomiting. Temperature went up to 102, where it remained for three days, at the end of which time the patient experienced marked relief from pain and had a copious flow of urine containing large amount of pus, showing that the urine obtained before had been the secretion from the left kidney, the flow from the right kidney having been shut off. For the next ten days convalescence was normal, the spasm in the region of the right kidney disappeared and the patient appeared to be doing well, and pus was present in the urine constantly though in diminished quantity. Two weeks after operation the patient had a second attack of pain in the right kidney and again the pus disappeared from the urine. This attack lasted two days and was rather less severe than the previous attack, and disappeared as before when the obstruction to the flow of urine was overcome. During the remainder of her stay in the hospital (three weeks), the patient was comparatively comfortable, having two or three slight attacks of pain lasting only a few hours, and was discharged relieved, the gall bladder incision being practically closed. A week after leaving the hospital the patient had another severe attack of pain as reported by her husband, lasting two days and clearing up as the previous attacks had done. A month later the patient had another severe attack of pain, which was accompanied by the onset of labor, and the patient was delivered prematurely at about six and one-half months. Following delivery the patient experienced absolute relief from her attacks of pain, and six weeks later reported at the hospital as being in good health. At this time there was no tenderness over the kidney and nothing abnormal in the urine.

CASE III. Seen in consultation. Following history: Patient delivered of her first baby after a normal pregnancy five weeks before. Unable to urinate during

* Read before the Obstetrical Society of Boston, Dec. 18, 1906.

the early days of convalescence; was catheterized for three days. After that made apparently a normal recovery. During the five weeks before I saw her the patient had had three distinct attacks of what the attendant had called gastritis, attended by a slight rise of temperature, reaching perhaps 102. Pain in the right hypochondrium and some nausea and vomiting. Patient had gained strength very slowly and was in poor condition for a patient at that length of time after delivery. Dissatisfied with her progress she called in another physician, at whose first visit the condition was found to be as follows: Patient complaining of considerable pain in right hypochrondium and nausea. Temperature 102. Marked tenderness over the whole right side of the abdomen. Some muscular spasm. Diagnosis probably appendix. Urine absolutely clear. No albumin. Sediment showed no pus. I was asked to see the patient in consultation, and three hours later found the condition as follows: Pain had largely subsided. The whole abdomen was flabby and perhaps slightly distended. Very slight abdominal tenderness in the right hypochondrium. Lower portion of the abdomen normal. On deep palpation over the right kidney region distinct tenderness noticed, particularly over the quadratus lumborum. Specimen of urine obtained at this time was cloudy and contained a trace of albumin. On examination the sediment was composed almost entirely of pus. The case is interesting as showing that what is apparently an acute inflammatory condition of the abdomen may be produced by the blocking up of the ureter, and during the attack, the secretion from the other kidney being normal, the observer may be led entirely astray as to the condition present. At the time I saw the patient, the diagnosis was perfectly evident, the condition having been relieved by drainage of the affected kidney. The subsequent progress of the case under urotropin and ingestion of large quantities of water was satisfactory.

CASE IV. Multipara. Third pregnancy. Gave the history of having had two previous attacks of pyelitis, the right kidney being affected in both cases. The cause of the first attack unknown; the second attack followed a catherization after an operation for trachelorrhaphy and operation for hemorrhoids. First attack had been comparatively mild, subsiding in a few days, and the second attack had lasted for rather more than four weeks before definitely clearing up; and at one time distinct uremic symptoms appeared, raising the question of drainage of the kidney for relief. Urine had been kept under careful observation during the early part of pregnancy and had been normal, no albumin being present and the sediment showed nothing but squamous cells with occasional leucocytes. Three weeks before the expected time of labor, patient complained of the symptoms of beginning cystitis. The urine at this time showed a slight cystitis. Patient put at once on urotropin, 7½ gr. twice a day, and increased quantities of water, and the bladder was washed out with 20% argyrol in the hope of checking the upward spread of the infection. The following day the bladder was more comfortable and the treatment was repeated. The third day after the beginning of the attack the patient complained of pain in the region of the right kidney; there was no spasm or definite tenderness. The urine showed an increased amount of pus and the temperature at that time reached 102.° The following day the pain and tenderness in the region of the right kidney was increased and some muscular spasm was present. The temperature at night was 105°, and it was decided to empty the uterus to relieve the pressure the next morning unless marked amelioration of the symptoms occurred. During the night the pain subsided and a markedly increased amount of urine was passed; on settling, about one eighth pus. The next morning the temperature was normal and the patient felt perfectly comfortable, though there was still spasm and tenderness over the right kidney. I decided to wait twenty-four hours longer to see whether relief would be permanent before emptying the uterus. During the day the symptoms gradually increased, showing that absorption was once more taking place, and the temperature at night reached 105° for the second time. It was definitely decided to empty the uterus next morning under any circumstances. Labor began spontaneously at 4 A.M., and the cervix dilated rapidly. As there was an increase of pain in the kidney with each contraction of the uterus, the patient was etherized as soon as preparations could be made for the delivery. Dilatation of the cervix was completed and an easy forceps operation done. During the next three days the temperature ranged from 100° to 103°, showing a gradual downward tendency. The third day the left kidney became involved and there was a slight increased rise in temperature to 103.5°, but with pain and spasm over the left kidney. This attack lasted in all two days, and from that time on there was a rapid subsidence of symptoms, so that by ten days after delivery the patient was passing from 90 to 100 oz. of urine containing a very slight trace of urea and comparatively little pus, the temperature running normal, and the pulse was running between 80 and 90. Still slight tenderness over both kidneys, but no muscular spasm and no subjective symptoms. Patient was able to nurse with fair success. A month later examination of the urine showed that the pus had entirely disappeared. No albumin present. The organism in this case in all three attacks was the Bacillus coli communis. The first and third attacks occurred without interference with the bladder and therefore must be set down as idiopathic in origin. The second attack followed directly after catheterization.

CASE V. Patient seen in consultation Nov. 12, 1906. History of a difficult operative delivery two weeks before. Convalescence normal till the twelfth day, when the patient had sudden attack of pain in the right side. Chill, temperature reaching 102°. Treatment had been increased water and urotropin. Urine had been of high specific gravity, containing a large quantity of pus. Temperature had remained about 102° from the onset of the attack up to the time when I saw her (on the fourth day), when it had taken a sudden drop, and at the time of my visit was 100°. Careful abdominal examination showed moderate tenderness over the region of the right kidney. No muscular spasm present and no palpable enlargement of the kidney made out. Nausea and headache, which the patient had previously complained of, had disappeared. Patient was passing an increased amount of urine containing a considerable quantity of pus. Evidently the kidney was draining itself properly, and a good prognosis for ultimate recovery was given. Temperature kept on falling till it reached normal, where it remained for twenty-four hours, then jumped up to 102° again, and on the following day phlebitis of the right leg was evident. This was followed by involvement of the left leg, and the patient is still suffering from the phlebitis, but has the pyelitis entirely cleared up.

One interesting feature of these cases is that the right kidney has been involved in all cases, the left kidney being secondary in both cases in which there was bilateral involvement. I know of no anatomical reason why the right kidney should be peculiarly susceptible, but it seems to

be the case in the various series of cases which I have seen reported. This right-sided involvement opens the door for constant mistakes in diagnosis during pregnancy or in the early puerperium. The differential diagnosis between inflammatory conditions of the abdomen during pregnancy is very difficult, if not impossible, and unnecessary operations will undoubtedly be frequently performed on account of the impossibility of distinguishing accurately between an acute attack of appendicitis and an acute pyelitis. Time will, of course, show the true diagnosis, but the history of acute appendicitis during pregnancy or in the early days of the puerperium shows such a large percentage of fatal cases that time is the one factor which cannot be given, and it is unquestionably safer to operate unnecessarily for a pyelitis than to delay operation on a gangrenous appendix.

A CASE OF PYELITIS DURING PREGNANCY.*

BY C. H. HARE, M.D.

Mrs. 5289; age thirty-eight; married five months. Catamenia began at seventeen and one-half years, and has always been normal. Last menstruation Oct. 26. She had always been perfectly well in every way, and was a well, strong looking woman. She was first seen March 20, when her story was that urination had occurred regularly five or six times a day up to March 14, when without any known cause, after going seven and one-half hours without voiding the urine, she suddenly began to pass it every half hour day and night with dysuria and tenesmus, and that condition had ~~existed up~~ to the time I saw her, although the tenesmus was somewhat better. She was a careful observer, and had seen a few specks of blood in the urine at various times. She had kept the daily secretion above 60 oz. since the fourteenth. There had been no renal colic, but there had been an ache in the region of the right kidney, especially in the back, for two days. The urine had been clear before the fourteenth, but cloudy as a rule, though clear at times, since the fourteenth. Her weight was 128 lb. There had been no edema, headache or nausea, or any other symptoms except the above. She was the fifth of eight children, two of whom had died in infancy. Both deaths were said to have been caused by pneumonia. Her mother died of tuberculosis when the patient was eleven years old. Examination of urine taken by catheter March 20 had about 2 dr. of practically solid pus in 3½ oz. of slightly acid urine; specific gravity 1,010 and a good trace of albumin. There was a moderate amount of blood and bacteria, very few round cells and a few pavement cells. Probable diagnosis: Pus in the right kidney. She was told to stay quietly in bed and watch the urine for intermittent pyuria. She was given 7½ gr. urotropin three times daily, and told to take all the liquid she possibly could. On March 23 she had a chill at 11 A.M. and was chilly at 5 P.M., when I next saw her, at which time pulse was 108 and temperature 99.4. For a few days she had profuse sweating and looked flushed in the face although she felt perfectly well. By March 25, urination had dropped to once every two to four hours day and night. Tenesmus had ended and there was no dysuria. Pyuria which had been steady, ended on this day. She had voided from 2 to 10 oz. each time, and passed 54 oz. in twenty-four hours. On this day she had her highest temperature and pulse, which at 1.30 P.M. was, pulse, 116; temperature, 101. The urine on March 24 was examined by Dr. Garceau, who reported: Total twenty-four-hour amount, 60 oz; total urea, 20.34. Specific gravity, 1,005. Very slight trace of albumin, much sediment which consisted chiefly of pus, many round and medium size epithelial cells which were granular. Few cordate cells. Few hyaline and granular casts. Many bacteria. Many diplococci. No gonococci. No tubercle bacilli. Many subsequent examinations were made by both Dr. Garceau and myself, which I will not report in detail, as the urine gradually cleared up, and by April 5 was normal. The urine was also normal on all subsequent examinations during her pregnancy and her puerperium. She was up and about after April 1 and since then has had no trouble although she was carefully watched until about a month after her baby was born. She had a normal and easy labor July 23, which was followed by normal convalescence.

* Read at the Obstetrical Society of Boston, Dec. 18, 1906.

Reports of Societies.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Thursday, Jan. 3, 1907, at 8.30 P.M. The President, Dr. Wilmer Krusen, in the chair.

VAGINAL HYSTERECTOMY.

Dr. George Erety Shoemaker presented this paper in which the conditions under which vaginal hysterectomy was considered, the operation of choice as contrasted with hysterectomy through the abdomen, were illustrated by the histories of ten cases last operated upon. All made normal recovery. Nearly all the patients had passed through the menopause. Fibromata not larger than a child's head which gave trouble from pressure or from hemorrhage were considered suitable for vaginal hysterectomy, especially in stout women with poor hearts. In procidentia of old women where the uterus was diseased, especially in the presence of adenoma of the endometrium, the uterus was removed through the vagina as a preliminary to thorough repair of the pelvic outlet, including the anterior and posterior vaginal walls high up. Where the uterus is not diseased vaginal hysterectomy is not usually an element in the operation for procidentia. Great stress was laid upon the importance of paying heed to post-menopausal bleeding and cases were cited bearing upon this condition. The danger of overlooking early malignancy in the examination of scrapings was emphasized. That only a few and perhaps none of the tiny pieces removed by the curette might happen to contain structure from which a diagnosis of malignancy could be made, if present, was shown by reference to a case in which Dr. Shoemaker had removed the uterus for constantly increasing hemorrhage at the age of forty-one under a clinical diagnosis of malignant adenoma. The microscopical report pronounced the adenoma benign, but three years later there is reported a recurrence of malignant disease in the vaginal scar which proved the clinical diagnosis to have been more correct than the microscopical.

The method usually adopted for removing the uterus by the vagina is to cauterize freely if there is suspicion of malignancy, ligate with silk low down and to use the clamps high up, morcellating the mass when it is too large to deliver easily. The operation was considered not sufficiently complete for malignant disease of the

cervix nor indeed of the endometrium, except in very early cases of adenocarcinoma of the fundus. In all other cases abdominal hysterectomy is to be preferred. Vaginal hysterectomy, considering the after care, was regarded as harder and more tedious for the surgeon, but in selected cases easier for the patient. Convalescence was more rapid and satisfactory, both mortality and morbidity being less than in abdominal hysterectomy, while the after condition of the patient, especially in fat and flabby persons, is better.

DR. JOHN C. HIRST would hesitate about doing hysterectomy before trying atmokausis in a case of persistent bleeding where examination of the scrapings showed no malignancy.

DR. BROOKE M. ANSPACH believes there are cases of persistent metrorrhagia or menorrhagia requiring hysterectomy in which no pathological lesion of the endometrium exists, and in which, therefore, examination by curettement is absolutely negative. In these cases the lesion is in the myometrium and it is amenable to nothing but radical treatment.

DR. C. C. NORRIS believed that in the large majority of cases the microscope can be relied upon to give an absolute diagnosis in all cases of carcinoma of the fundus uteri. Especial care should be taken of the curettings, which should all be at once placed in fixing solution. Personally, he prefers Zenker's, but Muller's fluid or 4% formalin will do very well. A plan suggested as possibly better, in cases with a small amount of tissue, is to place it first in water and then transfer it to the fixing solution, that the blood may be separated from the tissue. Special pains should be taken to have all the tissue cut. This is best done by having two or three or more blocks mounted and from these cut serial sections and have every tenth or fifteenth section stained. The chief sources of error in the pathological diagnosis were thought to be because the tissue is often improperly hardened, that it is not all cut and consequently not all examined, and that in some cases the diagnosis is made by men not especially experienced in this line of work.

DR. SHOEMAKER in closing said he did not wish to be understood as advising hysterectomy where no pathological lesion has been demonstrated, except where the menopause has definitely occurred and bleeding has recurred after one year. The malignaney could unquestionably in most cases be established by the curette, if proper pieces including basement membrane were obtained. Reference was made to an examination of curettings made for him by Dr. Foulkrod in which in twenty slides all but one were negative.

REPORT OF A CASE OF CHORIO-EPITHELIOMA. OPERATION. AUTOPSY.

DR. BROOKE M. ANSPACH and DR. HENRY R. ALBURGER reported a case of chorio-epithelioma which came to operation and autopsy. A careful examination was made of the original uterine growth and of the metastatic tumors found in the retroperitoneal glands, kidney, liver, pancreas, lungs and a pectoral muscle. The following observations concerning the case were made by the authors:

(1) The history did not very closely suggest the disease, which was diagnosed only after curettage and the examination of scrapings.

(2) There was delay in performing a radical operation, due solely to an unwillingness on the part of the patient, and this probably led to the fatal result.

(3) Widespread metastases were found at autopsy involving almost all of the visceral organs except the spleen.

(4) The tumor was very malignant and did not contain chorion villi.

(5) The ovaries were riddled with Graafian follicle cysts. There was very little lutein tissue present. In this, therefore, if the lutein secretion of the ovary is intimately connected with the physiology of placentation, the defect was decrease and not an increase.

(6) The histologic picture presented by the metastatic growth in the liver presented an interesting feature. There was difficulty in determining the line between the liver cells and the borders of the chorio-epithelioma. This condition was suggestive of the hypothesis which has been advanced, that certain neoplasms in a tissue or organ may stimulate the parenchymatous cells to more rapid growth with the production of a new type of cell resembling closely those of the invading tumor.

DR. J. A. MCGLYNN reported a case seen in the Medico-Chirurgical Hospital in which the uterus was typical of chorion epithelioma. The patient died in about three days subsequent to hysterectomy. The patient was fifty-seven years of age and had had no children for over twenty years. There was no history of mole but the bleeding was profuse. Stress was laid upon the frequency with which chorion epithelioma follows hydatid moles. For this reason the after-treatment of mole should be carried out with care. Curettage of the uterus should be followed by swabbing with carbolic acid or flushings of bichloride of mercury and sterile water.

DR. J. S. BAER spoke of the importance of seeking the cause of bleeding at any time, except during the regular menstrual period. This to the general practitioner he thought was of great importance.

DR. CURRIE referred to the case mentioned by Dr. Hirst and which had been under his care. The bleeding had followed a normal convalescence from confinement and was the only symptom.

DR. ANSPACH in closing called attention to the two most practical points: The necessity in making a diagnosis by the microscopic examination of scrapings of curetting the uterus very thoroughly so as to include some of the inner muscular tissue of the uterine wall; and that sometimes even apparently hopeless cases are cured by an operation which is incomplete. He referred to a case reported by Dr. Noble of a tumor involving the bladder in which it was impossible to remove all of the diseased area. Supra-vaginal hysterectomy was done, no attempt was made to excise the diseased bladder wall and the patient recovered. Other similar cases were said to be reported.

THE TREATMENT OF ECLAMPSIA.

DR. JOHN C. HIRST's conclusions as to the treatment of eclampsia, based upon the cases at the University of Pennsylvania Maternity, were as follows:

The routine treatment consisted of,

1. Chloroform to avert the attack, if possible.
2. Fifteen minims of fluid extract of veratrum viride hypodermically.
3. Wash out stomach and through the tube introduce 2 ounces of castor oil and 4 drops of croton oil.
4. Hot vapor bath or hot pack for thirty minutes in every four hours.
5. Hypodermoclysis of salt solution Oi under breast every eight hours.
6. If convulsions recur, repeat veratrum viride in five-minim doses every hour for three doses, and then if blood pressure is still high and patient cyanotic, venesection is performed, removing 8-16 ounces of blood.
7. Under ordinary circumstances let the labor alone.

Morphine and pilocarpine are not used routinely, but their use is restricted to desperate cases only.

Venesection is not used routinely, at least until veratrum viride has been given a trial.

Accouchement forcé is used only under the following conditions:

1. When the patient is far advanced in spontaneous labor, forceps are applied.

2. If patient is seen very early after the first onset of convulsions, it may be advisable to interfere.

3. If patient is going from bad to worse under treatment, the uterus is emptied as a last resort. The method employed is either vaginal hysterectomy and forceps or the Pomeroy bag, followed by forceps. The latter method is probably the better. The cases studied were 88 cases of eclampsia and 278 cases of albuminuria. This treatment gave a mortality, excluding cases brought in in a moribund condition, of 13.4%. Of the cases of albuminuria, 40 had had eclampsia in previous labors (one four times) but escaped under treatment.

Dr. Richard C. Norris, in opening the discussion, said that casual reference to his records at the Preston Retreat showed an average of two or three cases of eclampsia in a year. He usually sees four or five cases every winter in consultation, but has had but one case of eclampsia in his own private practice in fifteen years. He has never done Cesarean section nor used a Bossi dilator in eclampsia at the Preston Retreat. When the cervix is dilated, forceps or version is resorted to, and prior to dilatation eliminative treatment is vigorously employed while a bag is used to obtain dilatation. The method of elimination by the bowel he regards as the most valuable. He has yet to see a woman die of eclampsia from whom he was able to secure from 12 to 20 stools in twenty-four hours. This is his first aim in treating any case. Two ounces of Epsom salts are first adminstered and if vomited, then three to five drops of croton oil are given in sweet oil. The danger to the case was pointed out of excessive amounts of salt solution unless the purging or sweating is free. Veratrum viride should be used with caution, in some cases of eclampsia being distinctly contra-indicated. If the condition is of sudden onset, veratrum would be useful in moderate, frequently repeated doses until it has markedly slowed the pulse. Morphia, owing to his early training, he has usually omitted. There should be a differentiation as far as possible between the various types of the disease. Cases showing a slow onward progress suggest a kidney type, and in such cases morphia would be a bad drug to give, especially in the interstitial type as recently pointed out by Dr. Tyson. Other groups of cases may be looked upon as of intestinal origin, and here large doses of morphia to control convulsions and copious lavage of the bowel would be of value. Another group of cases, hepatic in origin, he has always felt to be the most hopeless. Admitting that there is nothing to prove the theory of the syncytial origin of the toxins of eclampsia he is inclined to group those as possible of syncytial origin in which the onset is sudden and without premonitory signs. In such a case he would not hesitate to either stretch or cut the cervix and deliver the patient rapidly. The plan of treatment to which he has always objected is the routine use of vigorous surgical procedure. He admits that the literature of the world in the last year or two shows a steadily reducing mortality from the aggressive plan of surgical treatment, but he believes the secret of this to be that all cases are being so treated, and that the mild ones that would have gotten well without the surgical treatment are credited to it, and that the worst cases that will die in spite of surgical treatment continue to give a mortality to even that treatment.

Dr. Norris regards the absence of mortality from eclampsia at the Preston Retreat due to the fact that they do not have the neglected emergency cases rather than as a credit to himself. For the same reason he explains the absence of mortality from sepsis in almost 4,000 consecutive cases.

Dr. Barton Cooke Hirst referred to the serious problem in the treatment of eclampsia in the University Maternity on account of the kind of cases brought in in the ambulance. He does not agree wholly with Dr. Norris concerning purging. He thinks it is brought about too slowly to be of great value in the worst cases, and in such cases he depends mainly upon sweating. This, however, he thinks is very imperfectly carried out in the average private house and suggests that the double mortality of the private house cases compared with the hospital cases may be due to this imperfect method. An illustration was given in which a patient treated at home was given up to die by the attending physician, when sweating brought about by the apparatus used by Dr. Hirst in the hospital resulted in recovery. The patient must be put into a regularly arranged tent, a steady stream of live steam must be introduced under the tent and the treatment must be continued for thirty minutes, when literally quarts of fluid can be drained from the woman's blood vessels. The loss of fluid is replaced by normal salt solution given midway between the sweats. The sweats should be given every four hours during the worst of the attack, but should be continued once or twice a day for several days. Of special interest to Dr. Hirst in the treatment of eclampsia is the relative advantages of rapid delivery in eclampsia during pregnancy or labor and the conservative treatment. His feeling at the present time, after ample experience with both kinds of treatment, is that the conservative obstetrical treatment of eclampsia gives the best results. An absolutely rigid rule, however, cannot be followed. Cases are presented in which he deliberately resorts to accouchement forcé in spite of his prejudice against it; for example, a woman entering the hospital comatose and in convulsions who fails to respond to the routine treatment, is subjected to accouchement forcé. He has seen some of such cases recover unexpectedly. Veratrum viride has seemed to him the best drug in the treatment. Cases in which it is contra-indicated were given. Venesection has not worked well in his hands. If veratrum viride is indicated he gives 15 minims of the fluid extract as a first dose, repeated in 5-minim doses as often as necessary to keep the pulse at 50 or 60. In twenty years he has seen but a single case of veratrum viride poisoning. The woman, however, was easily revived by digitalis, strong coffee and alcoholic stimulation.

Dr. Hopkinson had employed the Straganoff treatment in a large number of cases, and in eight consecutive cases it was successful except in the last.

Dr. Swithin Chandler referred to the change of opinion concerning the use of morphia.

Dr. William R. Nicholson regarded the most important point that of rapid delivery. He cited a case which had recently come under his care in the Maternity of the Presbyterian Hospital. The patient had been brought in in the ambulance after having had a dozen convulsions at her home. The mere placing of the hand upon the abdomen caused convulsions. Eliminative treatment was instituted but the convulsions remained. Under mild chloroform anesthesia the cervix was dilated without tearing and the child which was dead delivered by forceps. There were subsequently two convulsions and within the next thirty-six hours the woman returned to consciousness. He would not go on record as believing this the proper treatment for a large number of cases.

He does believe, however, that accouchement forcé is indicated in a certain limited number of cases *after* eliminative treatment has been instituted.

DR. FOULKROD spoke of his interest in watching the treatment of eclampsia in three different maternities. He felt that there was a strong feeling against operative interference unless it was imperative. The solution of the whole problem, he thought, rested upon a man's judgment. The primary source of infection and concerning the length of time eliminative treatment should be continued he felt were questions of great importance. He thought it an open question whether or not in the cases of hepatic toxemia the estimation amount of nitrogen excretion will not aid in a diagnosis before the eclamptic seizures. The question present is whether it is not possible by some such means to decide whether a severe rather than a mild case will ensue. While it would sometimes seem that the primary cause of eclampsia may be due to the lack of intestinal movement causing irritation in the various organs, it is difficult to make an analysis with much care before a patient goes into eclampsia.

Book Reviews.

Pulmonary Phthisis. By H. HYSLOP THOMSON, M.D., Glasgow. New York: William Wood & Co. 1906.

Another book upon this prolific subject has been brought to our attention. The one in question presents many good points for recommendation. While not offering any very new opinions or facts, it presents many data in not only an attractive but sane manner, and will be read doubtless by many with interest and profit.

The book is divided into four sections, devoted respectively to the Diagnosis, Prognosis, and Treatment of Phthisis, the fourth being devoted to the consideration of Tuberculosis in Childhood. An appendix gives the Circular of the Local Government Board of Scotland.

Under the first section practical and useful hints are given for the best methods of examining sputa, and also for the use of tuberculin in diagnosis. An excellent word of caution is also given against the much-abused term "cure" in cases of phthisis in which the disease has been arrested. The author speaks as one who knows the folly of making extravagant claims in this matter, and deserves an earnest word of commendation for his conservative expressions upon the subject.

Treatment by serums is touched upon without giving decided opinions, and the author is evidently a believer in the use of drugs for lowering persistent temperature, and has faith in creosote as a means of combating one of the most distressing symptoms of this disease.

He is a believer in compulsory notification of cases of tuberculosis, and at some length gives the reasons for his belief. Several pages are devoted to the history of tuberculin and of the various methods introduced by Koch, Maragliano, von Behring, and others.

On the whole, the book is well worth reading because, for one of its size, it gives an excellent if necessarily superficial picture of modern methods of treatment of tuberculosis.

Elements of General Chemistry with Experiments. By JOHN H. LONG, M.S., Sc.D., Professor of Chemistry and Director of the Chemical Laboratories in the Northwestern University Medical School. Fourth edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co. 1906.

This work on general chemistry is peculiarly suited to the needs of the student. While the subject matter devoted to any given topic is rather elementary and brief, yet the numerous experiments given should be sufficient to leave a lasting and valuable impression on the mind of the student. In this fourth edition some additions have been made in the presentation of chemical theory and in the description of new substances. Most of the added matter is given in a chapter which is not found in the older editions and which deals with the theories of solution and the conditions of chemical equilibrium.

Practical Dietetics with Reference to Diet in Disease. By ALIDA FRANCES PATTEE, Graduate, Boston Normal School Household Arts; Late Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City; Special Lecturer at Bellevue, Mt. Sinai and the Hahnemann Training School for Nurses, New York City. Third edition. New York: A. F. Pattee.

A third edition of a book of this sort demonstrates its usefulness. As an instructor in dietetics in various hospitals the writer is in a position to offer her readers a practical manual for their guidance. This the book appears to do. We question the good taste of the binding, which appears to be the cloth commonly used in the nurses' costumes.

Indications for Operation in Diseases of the Internal Organs. By Prof. HERMANN SCHLESINGER, M.D., University of Vienna; authorised English translation by KEITH W. MONSARRAT, M.B., F.R.C.S., editor. New York: E. B. Treat & Co. 1906.

This is an admirably conceived and valuable little book. It is full of serviceable information, and should be used as a book of reference. Schlesinger, the distinguished professor of internal medicine, writes of those diseases for which the physician should call the surgeon. He begins with diseases of the central nervous system, and takes up *seriatim* the pathological states of all the organs of the body, dealing with them under the following headings, severally and invariably: etiology, pathological anatomy, clinical phenomena, diagnosis, indications for operation, contra-indications, prognosis, risks of operation, results without operation. Every general practitioner should find the book useful, and it is for such men that it is written.

Medical and Surgical Journal.

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POPULAR MEDICAL LECTURES.

THE experiment recently inaugurated by the Harvard Medical School of giving information direct to the people regarding medical matters through a course of lectures has thus far met with success. It is evident that if such lectures are properly advertised, the laity will attend them, and it is furthermore not to be questioned that the general result is educative. In previous editorial comment on this subject, while commending the plan in its broad features, we drew attention to certain possible pitfalls to which the lecturers were exposed. On that occasion we said that the utmost care should be taken to prevent the possibility of misconceptions on the part of those who may attend the lectures; that matters still in doubt and theories should be carefully subordinated to a plain statement of ascertained facts which have a definite practical bearing, and that those who give the instruction should realize fully that the difficulties are far greater than, for example, in lecturing to a class of medical students.

The lectures given up to this time have been well attended, presumably by persons of average intelligence. The question is a pertinent one as to whether these persons have carried away misconceptions which might have been avoided by the lecturers and which possibly may have led to certain unfortunate misunderstandings. The medical profession stands in a peculiar relation to the community, as the guardian of its interests in connection with health. This relation has naturally led to an attitude on its part of universal criticism, and comparatively rarely to one of satisfaction with the existing order of things. This is in one sense unfortunate and may very easily under certain circumstances lead to misunderstandings and misapprehensions on the part of the public. We speak of this because it is apparent that public lectures given by medical men are likely, unless particular care is taken, to alarm as well as to enlighten the public. Unnecessary alarm over the existing state of affairs in public hygiene, it will be generally acknowledged, is undesirable. It should certainly be the aim of lecturers in any public course to state the facts exactly as they are, certainly not palliating any abuses that may exist, but also not laying undue stress upon conditions which taken in general are not bad. It is unfortunate to excite the public fear in matters relating to disease unless for certain very special reasons. In the question of tuberculosis, for example, while it has been necessary to insist upon the infectious character of the disease, there has evidently been much misapprehension regarding the actual danger, and much injustice has thereby been done to individuals, and families in which the disease occurred.

The duty of the medical profession in this matter is evident; on the one hand, to warn the public against the dangers of disease and, on the other, not to exaggerate the possibilities to the extent of creating unnecessary and unhealthy alarm. This responsibility has become more apparent since the development of the idea of giving public lectures on topics hitherto reserved for medical gatherings. In a recent editorial, entitled "The Medical Education of the Public," the *British Medical Journal* comments favorably on the idea of public lectures given at the Harvard Medical School and alludes to a similar attempt which has recently been made under the auspices of the British Medical Association. We quote a paragraph from this editorial:

"It appears to us that nothing but good can come of such teaching, if only the people for whom it is intended can be got to attend. There can be no doubt that the intelligent co-operation of the laity with the profession, not only in public movements but in the treatment of disease, would be of the greatest use. In this country a step in the medical education of the public has been taken by the British Medical Association, and the popular lecture at the annual meeting, instituted two or three years ago, has attracted large audiences. We should like to see this beginning developed into a fully-organized system. The lectures should be limited to plain statements of facts without excursions into the region of speculation. The lecturers should aim at impressing the aims and methods of rational medicine on the public mind. But, as President Eliot points out, to discharge this function properly requires in medical men the power of

interesting exposition with telling illustration and moving exhortation. The lecturers would have to be selected for their natural gifts, and would, further, have to be thoroughly trained for this mission. Although the suggestion may at first blush startle the more conservative minds of the profession, it is nothing more than adopting the methods used by the enemies of science. The case for rational medicine is allowed to go by default, and the people not unnaturally run after false prophets."

With this point of view we are in entire agreement. It is simply necessary to bear in mind that the entire movement toward further education of the public in medical matters is an extremely significant one, which, as our contemporary suggests, must be entered upon with a full realization of its possibilities both for good and evil.

OPHTHALMIA NEONATORUM.

RECOGNIZING the large amount of blindness resulting from the neglect of the eyes in newborn children, resolutions were adopted at the last meeting of the American Medical Association in which attention was called to the increase of blindness from infectious ophthalmia, to the relative certainty of treatment when properly applied, and finally it was recommended that a committee be appointed to formulate and render effective a plan to combat the disease. In pursuance of this plan the committee, composed of Drs. F. Park Lewis, J. Clifton Edgar and F. F. Wesbrook, has drawn up a program and distributed it in the form of a double leaflet for the purpose of securing expressions of opinion.

Admitting the fact that merely washing the lids of the newborn child with sterile water is a useful prophylactic in many cases, it nevertheless seems essential to employ a germicide to render the prophylaxis complete. It is furthermore generally agreed that of such germicides a solution of nitrate of silver is the most efficacious. It is, however, suggested that this solution be used in the strength of 1% rather than 2%, inasmuch as it must be used largely by inexperienced persons, and also since the weaker solution properly applied is apparently entirely satisfactory. The question is further asked whether the use of this silver salt should not be employed as a routine measure in every newborn child's toilet. In order to accomplish this end it would be necessary that state health boards take it upon themselves to supply the solution to physicians and midwives in properly sealed receptacles. Again it is questioned whether it would be well that a blank should be left on each birth certificate to be signed by the obstetrician regarding the treatment of the eyes instituted at the time of birth. If such precautions are neglected, as indicated by a failure to sign the certificate, and ophthalmia later develop, should the accoucheur be held responsible? Finally, it is proposed that ophthalmia neonatorum be placed on the list of communicable diseases.

The circular states these various propositions in amplified form and requests general answers from physicians as to whether or not they approve of the plan as outlined. It is to be hoped that the circular may be widely read and that a free expression of opinion may be given the committee. It is not to be questioned that ophthalmia of the new born may and should be prevented. The question at issue rather is what the best and most practicable method may be to accomplish this end. A wide response on the basis set by the committee should certainly be forthcoming.

ILLUSTRATIONS THAT DO NOT ILLUMINE.

VERY frequently in looking over the medical weeklies, English, American and German, the eye is caught by a photographic illustration suggestive of the impressionist school. Closer scrutiny reveals a marked absence of detail and curiosity as to the meaning of the picture is aroused. If the latter is its purpose the presence of the picture is justified. If, on the other hand, the illustration is intended as an aid in the clear presentation of some medical subject, it is a failure. A careful study of the paper and the legend attached to the picture usually, not always, serves to make clear the intent of the illustration. Frequently some particular cell or cell group described in the text and intended to be shown in the picture can only be made out vaguely. The picture in no way aids in understanding the views of the author. If this were merely an infrequent experience there would be no occasion for criticism, but as it is an almost weekly occurrence, it seems that attention should be called to it since poor illustrations detract from the good appearance of the medical journal and in their cost represent a waste of money.

The reason for the many poor illustrations that we see are several. Primarily it is due to the fact that the subjects are chosen and the photographs made without reference to the mode of reproduction to be employed. There is a necessary loss of detail between negative and reproduction, and this varies with the kind of reproduction,

whether halftone, heliotype or other process, and also with the paper used for printing. This must be taken into consideration and all photographs which, when reproduced, will not show in sharp detail the structures to which attention is called should be discarded, or the process so varied as to attain the desired end. Again, it is essential in the first place that the negative be a good one and that the print from it be made on the paper which will yield the best result in reproduction. A negative or print which itself is poor can never make a satisfactory reproduction.

Medical journals should decline to go to the expense of illustrating a paper whenever the editors believe that the illustration will fail to show what it is intended to show. Under these circumstances a good verbal description or a diagrammatic sketch is far preferable. If printing on good paper will allow the desired detail to appear it should be used, or there should be no illustration. Illustrations which merely show that the author has spent time and money in photomicrography are far too frequent in the weekly medical journals.

MANAGEMENT OF TRUANCY.

Superintendent Maxwell has made a report to the New York Board of Education in regard to the management of truancy, in which he expresses the opinion, based on investigations made during the past few months, that this problem, which has always been a source of trouble to the board, can probably be solved to a very considerable extent by the proper medical and surgical treatment of the children. An examination of the boys in the truant schools, made by a physician of the Health Department, showed that a majority of the truants were suffering from disorders, particularly throat and nasal troubles, requiring surgical treatment. Of 50 boys so examined, 33 were found to have hypertrophied tonsils and 16 adenoids. It may be, Dr. Maxwell goes on to say, that these disorders are the direct cause of the nervous restlessness that results in insubordination, stupidity or violence in school, and finally in truancy. The first duty of the school authorities, when a boy shows symptoms of insubordination, is to have him subjected to a scientific medical examination. In case a physical disability, susceptible of removal by medical or surgical treatment, is found, the parents or guardians should be requested to have the treatment applied. It is questionable whether the compulsory education law confers upon the school authorities the right to have a surgical operation performed, without the consent of the persons in parental relation, on a boy committed to the truant school. It if does not, Mr. Maxwell believes the law should be amended to confer that authority. He believes that we have not gone far enough in the matter to be able to say that a physical defect is the prime moving cause in every case of truancy. Enough is known, however, to assert that the majority of truants are suffering from some physical defect, and that the removal of this defect will probably lead to improved conduct and to the restoration of normal mental power.

MEDICAL NOTES.

A Large Bequest to the Pasteur Institute. — *The British Medical Journal* announces that M. Daniel Iffla Osiris, a wealthy Jewish financier, who died in Paris on Feb. 5, has left the half of his fortune to the Pasteur Institute. The amount is 25 million francs (£1,000,000), the testator's object, in his own words, being to assure to the institute a revenue of a million francs yearly (£40,000) to enable it to investigate the diseases that afflict mankind and to discover remedies for them.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, Feb. 20, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 29, scarlatina 54, typhoid fever 5, measles 10, tuberculosis 42, smallpox 0.

The death-rate of the reported deaths for the week ending Feb. 20, 1907, was 23.38.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, Feb. 16, 1907, was 262, against 217 the corresponding week of last year, showing a increase of 45 deaths and making the death-rate for the week 22.69. Of this number 138 were males and 124 were females; 256 were white and 6 colored; 165 were born in the United States, 90 in foreign countries and 7 unknown; 58 were of American parentage, 162 of foreign parentage and 42 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 31 cases and 1 death; scarlatina, 50 cases and

1 death; typhoid fever, 4 cases and 0 deaths; measles, 9 cases and 0 deaths; tuberculosis, 43 cases and 34 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 45, whooping cough 2, heart disease 27, bronchitis 5 and marasmus 3. There were 14 deaths from violent causes. The number of children who died under one year was 45; the number under five years 56. The number of persons who died over sixty years of age was 71. The deaths in public institutions were 89.

There were 2 cases and 2 deaths reported from cerebrospinal meningitis during the week.

SCARLET FEVER AT AMHERST. — Owing to the appearance of scarlet fever among Amherst students the precaution has been taken of closing the institution until March 1. All students not residents of Amherst are expected to go to their homes.

REPORT OF DANVERS INSANE HOSPITAL. — The twenty-ninth annual report of the trustees of the Danvers Insane Hospital shows a gratifying condition of affairs at that hospital. The medical staff both on the clinical and laboratory side has accomplished much work of significance during the period under consideration. Dr. Albert M. Barrett, formerly pathologist and assistant physician at the hospital, resigned about a year ago to accept the position of director in the psychopathic wards of the University of Michigan. Dr. Barrett has been succeeded by Dr. Elmer E. Southard, who is also assistant professor of neuropathology in the Harvard Medical School. For about six months Dr. F. P. Gay has served in the position of bacteriologist and laboratory assistant. The routine work in the laboratory and in the wards is such that the reports coming from this hospital are of the utmost value. Fifteen clinical and pathological papers have been furnished during the year from the laboratory. The Danvers Hospital may be regarded as a model of what may be done by a great institution for the insane, not only toward the care of this class of dependents, but also toward the elucidation of the problems which psychiatry presents.

ALUMNI ASSOCIATION OF THE BOSTON CITY HOSPITAL. — The Alumni Association of the Boston City Hospital held its annual meeting on Feb. 11, 1907. Interesting medical and surgical cases were shown in the amphitheatre of the hospital from eleven to one, when the trustees entertained the alumni at luncheon.

The business meeting was held at 6.30 o'clock in the Hotel Brunswick, Dr. George A. Leland presiding. Dr. Samuel B. Woodward of Worcester was elected president for the ensuing year.

Dr. Leland acted as toast-master at the dinner and introduced the following speakers: Dr. E. H. Bradford, president of the Alumni Association of the Massachusetts General Hospital, the Rev. E. A. Horton, Dr. Horace D. Arnold, Dr. George W. Gay, Dr. D. W. Cheever and Isaiah Clarke, Esq., and the president-elect, Dr. Woodward. One hundred and twenty-three men were present.

THE FOXBORO, MASS., HOSPITAL INVESTIGATION. — After a long investigation as to the condition of affairs at the Foxboro Hospital for Inebriates, the hearing has finally been closed. Although no definite report will be made for some time to come, the opinion of those who have followed the proceedings is on the whole favorable to the general conduct of the institution. Certain changes of policy would no doubt be advisable, but the testimony given by witnesses for the prosecution was of such a character that it could not reasonably be taken as an expression of the existing state of affairs. Various disinterested persons spoke on the general subject of institutional treatment at one of the later hearings. Among these were Mr. Joseph Lee, Mr. Robert A. Woods, Drs. Charles P. Putnam, George F. Jelly, and others interested in civic affairs. The general opinion was expressed that the institution should be continued, although modifications might be desirable. Dr. Jelly spoke particularly of the character of the patients admitted and of the difficulties in their proper classification and care.

WITHDRAWAL OF DR. D. W. CHEEVER FROM THE PRESIDENCY OF THE BOSTON CITY HOSPITAL STAFF. — Dr. D. W. Cheever having declined a re-election as president of the General Staff of the Boston City Hospital, the staff, at a meeting held Feb. 18, passed the following vote:

"For upwards of fifteen years Dr. Cheever has served this association as its presiding officer, dignified, patient, faithful, impartial, zealous, always striving for the best interests of the hospital and its staff. Ever since that June day in 1864, when this institution first opened its doors to the sick and injured, he has stood in the front rank of its friends and advisers.

"Long before the staff was accorded the high privilege of taking part in shaping the policy of the hospital, and of making nominations for vacancies upon its roster, Dr. Cheever was often consulted informally by the trustees upon these and other matters, showing the estimation in

which his character and his judgment were held at that time. Subsequent events have only served to emphasize the earlier experience.

"Dr. Cheever has always occupied an important position upon the Conference Committee, now the Executive Committee, which is the principal connecting link between the staff and trustees. The results of his efforts in this direction are well-known to all of us.

"After this long and faithful service, Dr. Cheever now feels it to be for the best interests of the staff that he should retire from the office of president. As might be expected he gives such cogent reasons for this action that we can but comply with his request, however much we may regret to do so.

"It is moved that the cordial appreciation of the staff be extended to Dr. Cheever for his long and arduous service in our behalf, together with the hope that so long as he may be spared to the profession and the community in which he holds such an enviable position, we may enjoy his presence at our meetings, and also avail ourselves of his wise counsel upon the various important measures that may arise."

NEW YORK.

Officers of Medical Society of State of New York. — At the annual meeting of the Medical Society of the State of New York, Jan. 29–31, the following officers were elected for the ensuing year: President, Dr. Frederic Colton Curtis, Albany; first vice-president, Dr. Julius C. Bierwith (Brooklyn), New York; second vice-president, Dr. Edward Torrey, Allegany, Cattaraugus County; third vice-president, Dr. Nelson G. Richmond, Fredonia, Chautauqua County; secretary, Dr. Wisner R. Townsend (Manhattan), New York; treasurer, Dr. Alexander Lambert (Manhattan), New York.

Milk Supply. — At the second meeting of the public series at the New York Academy of Medicine on Jan. 1, the milk supply and its relation to the health of the community was the subject of discussion. Among those who spoke were Health Commissioner Darlington and Dr. Rowland G. Freeman, physician to the St. John's Guild Seaside Hospital and other children's hospitals; and Dr. Darlington expressed the opinion that the only effective way to secure a good milk supply was to go to the sources of supply and prevent the shipment to the city of impure milk.

Jewish Maternity Hospital. — A new lying-in hospital, to be known as the Jewish Maternity Hospital, has been organized on the lower East Side, and property purchased, at a cost of $50,000, for its uses. The two houses on this property, which is situated on East Broadway near Gouverneur Street, are to be remodelled, and will furnish a capacity of at least fifty beds. While these alterations will not be completed until September, the outdoor department of the hospital is to be put in operation immediately. It is stated that the special need of this new maternity hospital is in consequence of the fact that a large number of Jewish women who, by reason of their poverty, must have free attendance in confinement, are unwilling, on account of their religious scruples, to avail themselves of the service of the New York Lying-In Hospital and other similar institutions.

Purity of Ice. — A special committee, appointed by the New York Merchants' Association, to investigate the sanitary condition of the ice now being harvested on the Hudson River, has sent to Governor Hughes a communication in which it is stated that several chemists were employed to analyze samples of ice taken from various points supplying the crop. By these it was found that most of the ice, either at the top or bottom of the cake, showed the presence of intestinal bacteria. Especially bad was the ice cut on the fields between the cities of Albany and Troy, and for five miles south of Albany. In both instances it was practically solidified sewage. Near Albany and elsewhere ice was cut close to the large sewer outlets. In this communication the State Commissioner of Health is severely criticised for his inactivity in preventing the harvesting of ice from polluted sections of the river. The committee has been unable to get any satisfaction from him, and it is stated that it is for this reason that an appeal is made directly to the governor. In his annual report, recently submitted, the Health Commissioner complained that the appropriation for his department was not sufficient to enable him to put a guard on the harvesting of ice, and expressed doubt as to whether, in any event, he had the authority to prohibit the cutting of ice from streams or lakes supposed to be polluted.

Manual Employment for Women. — In his annual report, just submitted to the legislature, the Fiscal Supervisor of State Charities, H. H. Bender, speaks with approval of manual employment for women. He states that at the New York State Reformatory for Women at Bedford, Westchester County, more has been done in the way of employing the inmates at manual labor than at either of the other institutions for female misdemeanants, and that the results have been excellent. At this reformatory the women are

employed in grading the grounds, laying cement walks and floors, painting and decorating, cutting ice, harvesting hay and working in the garden. This hard manual labor, the superintendent reports, besides reducing the expenditure for labor in all these lines, has tended to improve both health and discipline, and is thoroughly enjoyed by the inmates.

A LARGE AWARD FOR PERSONAL INJURIES. — One of the largest settlements ever made by a railway company in a suit for personal injuries has just been made in the case of Edward Kleist, of New Rochelle, against the New York Central and Hudson River Railroad Company. The original suit was for $200,000, and an agreement upon $50,000 was finally arrived at. Mr. Kleist, who is fifty years old, was one of the victims of the collision in the Park Avenue Tunnel on Dec. 19, 1905, and besides fractures in various parts of the body received an injury to the brain which resulted in hemiplegia and aphasia.

ADDITION TO GERMAN HOSPITAL. — To the German Hospital and Dispensary, Jacob Ruppert has given $10,000 for the erection of an isolation building for contagious diseases, and George Ehret $5,000 for the purchase of an adjoining lot as a site for an additional ward for the hospital.

BEQUESTS. — By the will of Mary J. Johnson, of New York, her whole estate, valued at $108,000, is left to religious and charitable purposes. Among the bequests are $7,500 each to St. Luke's and the Presbyterian hospitals, for the endowment of beds.

Among the bequests in the will of Mrs. Mary H. Pratt, of Brooklyn, N. Y., is $10,000 to the Brooklyn Home for Consumptives. The Pratt Institute, which was founded and endowed by her husband, the late Charles M. Pratt, is made the residuary legatee of the large estate.

CENTENARIANS. — Two deaths of centenarians are reported for Central New York. Thomas Snyder died at Chittenango Falls, Madison County, on Feb. 13, and John Van Etten, at Littlefalls, Herkimer County, on Feb. 15; both at the alleged age of one hundred and two years.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. FEB. 2, 1907.

1. WITHERSPOON, J. A. *Gonorrheal Arthritis.*
2. *CONNER, L. A. *The Bacteriology of Acute Articular Rheumatism.*
3. HERRICK, J. B. *Differential Diagnosis of Rheumatoid Joint Affections.*
4. BARKER, L. F. *Joint Affections in Nervous Disease.*
5. *LOCKE, E. A., and OSGOOD, R. B. *The Treatment of Non-Tuberculous Chronic Arthritis.*
6. HALL, W. S. *Physiologic Effects of Alcohol.*
7. MACNICHOLL, T. A. *Alcohol and the Disabilities of School Children.*
8. MAYS, T. J. *Alcohol as a Factor in the Causation of Pulmonary Consumption.*
9. TALBOT, E. S. *Alcohol in its Relation to Degeneracy.*
10. NOBLE, G. H. *Intramural Abscess of the Puerperal Uterus.*
11. ALBERT, H. *Disinfectants and Disinfection.*
12. VAN ALLEN, H. W. *Roentgen Rays in the Treatment of Lupus Vulgaris.*
13. *EINHORN, M. *The Digestive Bead Test for Ascertaining the Functions of the Digestive Apparatus.*
14. SOLLMANN, T. *Digestive Ferments* (special article).

2. Conner reviews the literature and theories of the bacterial etiology of acute rheumatism. He concludes that while we are justified in accepting rheumatism as a specific infectious disease and not merely as an attenuated pyemia caused by the common pyogenic organisms, and while there is considerable evidence in favor of the view that it is caused by a specific diplococcus or streptococcus, positive proofs of the specificity and identity of this organism and its causal relation to rheumatism are still lacking. Achalme's bacillus, he believes, has no etiologic relations to the disease.

5. Locke and Osgood discuss the treatment of chronic arthritis of non-tuberculous origin under the following heads: (1) Villous arthritis; (2) infectious arthritis; (3) atrophic and (4) hypertrophic arthritis. The first is not properly an entity, though it may occur without discoverable etiology or following trauma. Nevertheless, it may accompany the other forms as part of the symptom-complex. The infectious arthritis includes those joint affections supposed to be due to some chronic infection in the blood. The articular cartilages in this group are less likely to show marked changes than in the two following ones. Atrophic arthritis is the type characterized by atrophy of joint structures together with debility and general constitutional disturbance. It includes many of the cases of so-called rheumatoid arthritis. In the hypertrophic type there is less, if any, constitutional disturbance and a hypertrophy of cartilage and bone. The so-called osteo-arthritic types are here included. The classification is here recognized as imperfect and provisional, but is offered for the sake of conveniently stating the authors' views of treatment. This is general as well as special and the former, as a rule, most important. All abnormal conditions must be sought out and remedied. The general health, physical and mental environment, and all local foci of disease must be attended to, diet regulated, exercise, dress, etc., directed. In the physical treatment they include hydrotherapy, hyperemia, counterirritants, massage and active and passive motion, and the substitution of these for drugs is the secret of much of the success of the treatment at the present time. Hyperemia holds the chief place in the local treatment. In cases of simple villous arthritis, if conservative methods fail, radical operative measures are advised. Infectious arthritis gives a better prognosis and often improves rapidly with treatment. The authors insist on the importance of early active and passive movements to prevent adhesions. In the atrophic form, which is often very resistant, early massage and active and passive movements to correct the tendency to atrophy and fibrous ankylosis are also advisable. Operative treatment may be required. In the hypertrophic type, on the contrary, passive motion, unless employed with the greatest care, may do harm and the main principle in the treatment of this type is rest. Mechanical support may also palliate the symptoms. The local treatment is less effective in this type on account of the tendency to bony proliferation and ankylosis. The final results in any case will depend largely on early diagnosis and persistence in the treatment. In old cases we may relieve, but can hardly hope for a complete cure.

13. Einhorn again describes his new method, originated at the beginning of 1906, of giving the patient, in a gelatinous capsule, beads with various food substances attached and examining the stools, at longer and shorter intervals, to ascertain whether or not the substances have

been digested. He usually employs the following six substances: Catgut, fish bone, meat, potato, mutton fat, thymus gland. The first two are usually digested in the stomach, the others in the intestines. With regard to the functions of the digestive apparatus, the following conclusions are drawn: If all or most of the beads reappear before twenty-four hours there is an accelerated motility; if, after forty-eight hours, a retarded motility exists, if only traces of fat and thymus or fish bone remain, the digestion is good; the reappearance of meat and potato, much fat or thymus, indicates poor digestion, and if all the substances appear, the digestive function is absolutely bad. He has recently used this test in a number of cases, in various conditions of health or disease, and discusses the tabulated results. These tables, he says, show that the test gives a thorough insight into the relations of the functions of the digestive apparatus. More study, however, will be required before they can be used diagnostically. Einhorn has previously shown that catgut is occasionally digested in the intestines, and these later experiments seem to show that fish bone may also be thus digested in rare instances. He, therefore, instituted experiments by suspending pieces of catgut and fish bone by a silk thread in the stomach, and withdrawing it after certain periods. This experiment seemed to show that excessive acidity of the gastric juice retards the disappearance of the catgut, and other experiments showed that catgut is occasionally digested in the intestine, and that trypsin has occasionally a digestive action on fish bone. He is also experimenting to ascertain the value of the method of determining the presence or absence of HCl. He gives detailed directions for preparing the food beads, and remarks that while the test is of value, when a more thorough knowledge of the functions of the digestive apparatus is desired, it is not permissible with pronounced stenosis of the digestive tract, or with stricture of the esophagus, stomach or intestine.

THE JOURNAL OF MEDICAL RESEARCH.

DECEMBER, 1906.

1 and 2. TOBEY, E. N. *The Indol Reaction. The Cholera-Red Reaction.*
3. AUSTIN, A. E. *The Uricolytic Enzyme in Animal Organs.*
4. TOBEY, E. N. *Non-Virulent Diphtheria Bacilli from an Infected Middle Ear.*
5. STOOKEY, L. B. *The Influence of Subcutaneous Injection of Liver Extract upon Hepatic Catabolism of Uric Acid.*
6. *MARSHALL, H. T., and KNOX, J. H. M. *Modification of Bacillus Dysenteriæ after Cultivation in Agglutinating Serum.*
7. *BALDAUF, L. K. *The Chemistry of Atheroma and Calcification (Aorta).*
8. SCHULTZ, V. T. *The Spirocheta Pallida in the Tissues in Congenital Syphilis.*
9. HEWLETT, A. W. *The Effect of Amyl Nitrite upon the Blood Pressure in Man.*
10. *THOMPSON, R. L. *The Parathyroid Glandules in Paralysis Agitans.*
11. SMITH, T., and BROWN, H. R. *The Resistance of Red Blood Corpuscles to Salt Solutions of Different Tonicities before and after Withdrawals of Blood.*
12 and 13. LEWIS, P. A. *Hemorrhagic Hepatitis in Antitoxin Horses. Diphtheria Toxin Paralysis in the Guinea Pig.*
14. *FROTHINGHAM, C. *Lesions Caused by Trichina Spiralis in Man.*
15. DUTTON, J. E.; TODD, J. L., and TOBEY, E. N. *Hemoflagellates of an African Fish.*
16. RIVAS. *Bacillus Coli Communis in Drinking Water.*

6. Marshall and Knox report the results of their experiments with the bacillus of dysentery grown in antidysenteric sera in normal horse serum and in other allied fluids. The changes which took place in the characteristics of the bacteria, particularly in their agglutinability, were great. These modifications are suggested as evidence that the differences between different but closely related forms of bacteria, such as the members of the colon-typhoid group, may be simply the results of similar modification, under the influence of environment, from a single prototype organism. It is even possible that pathogenicity may be developed in certain strains of a bacterial species ordinarily non-pathogenic.

7. Baldauf has made quantitative analyses of human aortas in different stages of calcification with a view to tracing the chemical changes which the process involves. Unlike other observers he fails to find evidence that the formation of calcium soaps plays a part in such changes. He fails to confirm the finding that the deposit of inorganic salts occurs in the same percentages in calcification as in normal ossification. He finds a remarkable high percentage of lecithin, a phosphorus-containing substance, in the early stages of calcification, and suggests that this compound may be an essential step in the process.

10. Thompson reviews the history of our knowledge of the parathyroid glandules and their function. These bodies are very constantly present in close relation to the thyroid gland. Their removal in animals results often in tremors, tetanic spasms and convulsions. In certain cases these symptoms subside, after a short period, and are replaced by constant tremor. This fact has led several authors to the belief, on theoretical grounds only, that parathyroid insufficiency is the cause of paralysis agitans. To investigate this theory Thompson has examined nine cases of paralysis agitans post-mortem and compared the findings with those obtained in forty routine autopsies. Although in some cases abnormalities were found, his observations in no way support the theory that paralysis agitans can be traced to disorder of the parathyroid glandules.

14. Frothingham has demonstrated trichina embryos in the sinuses of the mesenteric lymph nodes and in liver sinusoids, from which he concludes that the mode of entrance of these parasites is by the lymph stream; their later distribution occurs by the circulating blood. The embryos may break out of the vessels in various organs and cause local destruction of tissue.

BRITISH MEDICAL JOURNAL.

JAN. 26, 1907.

1. VOELCKER, A. F. *Some Common Errors in the Diet and General Hygiene of Children.*
2. LEPAGE, J. F. *Remarks on Post-Partum Hemorrhage.*
3. JORDAN, J. F. *Notes on the Treatment of Myoma of the Uterus.*
4. COWEN, G. H. *Cæsarian Section in a Case of Contracted Pelvis with Twin Pregnancy.*
5. HOLMES, T. *On the Cause of Acute Illness Supervening during Menstruation.*
6. RAY, M. B. *Case of Obstructed Labour Due to Osteo-Sarcoma of Pelvis.*
7. *WATSON, B. P. *The Influence of an Excessive Meat Diet on Fertility and Lactation.*
8. SEALY, G. J. *The Food Factor in the Twentieth Century.*
9. CHARLES, J. R., and SANGUMETTI, H. H. *Multiple Myeloma.*
10. JONES, W. E. *A Case of Scurvy Occurring in a Diabetic.*
11. MENZIES, J. A., and JAMESON, W. E. *Vaccination of the Cornea.*

7. The problem of the falling birth-rate in England is one which has attracted many observers. During the fifty years in which this decrease has been marked, there has been a great increase in the consumption of meat, 3 lb. a head per annum in 1850 and 50 lb. a head per annum in 1902. The writer, thinking that this great increase in meat eating may have some relation to the declining birth rate and the decrease in the number of mothers who have breast-fed infants, conducted a series of experiments on rats, the controls fed on bread and milk, the experimented animals on meat. The results showed a marked decrease in fecundity among the meat-fed rats, as well as a considerable decrease in the amount of lactating tissue in each.

THE LANCET.

JAN. 26, 1907.

1. SYMES, J. O. *Erythema Nodosum and Rheumatism.*
2. MOFFAT, R. U. *Spirillum Fever in Uganda.*

3. WILLIAMS, C. *X-Rays in the Treatment of Carcinoma and Sarcoma.*
4. ANDREW, J. G. *Two Cases of Traumatic Rupture of the Kidney, in One of Which a Single Kidney Existed.*
5. FENTON, H. J. H. *On a New Test for Sugar.*
6. *McCULLOCH, H. D. *Observations on the Induction of Auto-vaccination in Tuberculosis and Other Chronic Glandular Infections by the X-Rays (as Revealed by the Opsonic Chart).*
7. BISSON, A. O. *Tracheotomy in Slight Respiratory Obstruction, Associated with Febrile Toxemia.*
8. MALLANNAH, S. *The Glandular Extract from Immunized Animals, as a Curative Agent in Plague.*

6. McCulloch has used the opsonic index as a guide to x-ray treatment of glands enlarged from tuberculosis or other causes. He believes that the effect of the x-ray on glands infected with micro-organisms is to stir up these organisms to produce a toxin which acts as an auto-vaccination; such vaccination from living tissue has been shown to be more beneficial than that from dead products, for in tuberculosis it has been demonstrated that tuberculin made from material taken from a tuberculous focus is more effective than any other kind of artificially prepared product. The paper is largely a discussion of theories rather than of a report of actual results.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 4.
JAN. 24, 1907.

1. *UHLENHUTH, GROSS and BICKEL. *Experimental Investigations on the Action of Atoxyl on Trypanosomes and Spirochetes.*
2. *HOPPE-SEYLER, G. A. *Clinical Lecture on the Treatment of Endocarditis.*
3. *BOAS, I. *Digestive Gastrosuccorrhea.*
4. *KATZENSTEIN, M. *The Changes in the Gastric Secretions after Gastro-Enterostomy, and the Effect of this Operation on Gastric Ulcer and Cancer.* (Concluded.)
5. STRAUSS, H. *The Technic of Intravenous Injections.*
6. REICHARDT, M. *Voluntary Dilatation of the Pupils.*

1. Koch has recently reported brilliant results from the use of atoxyl in trypanosomiasis or sleeping sickness. The authors have investigated the action of this drug in dourine, a venereal disease of horses due to the trypanosoma equiperdum. Using rats, mice and rabbits they found that by the simultaneous injection of atoxyl with blood containing these trypanosomes, the disease could be prevented, while the control animals all sickened and died, with numerous trypanosomes in the blood. Animals injected with atoxyl after infection show a rapid and complete disappearance of trypanosomes from the blood, which, in many cases, is permanent. In other cases, they reappear in small numbers at the end of a week and can be again made to vanish from the peripheral circulation by another dose of the drug. Similar results were obtained with the spirocheta gallinarum, which causes a septicemic disease of hens. The action of atoxyl would appear to be specific on trypanosomes, and might well be compared with that of quinine in malaria.

2. Hoppe-Seyler emphasizes the importance in acute endocarditis of searching for and removing the focus of infection which is the cause of the disease. Otitis media, tonsillitis, chronic appendicitis, abscess of the prostate and of the tubes are mentioned in this connection. He reports a very serious case of recurring endocarditis in a young girl, in which the removal of the infected tonsils resulted in a cure. For other details, the reader is referred to the original article.

3. Boas alludes to two forms of gastrosuccorrhea previously described, the continuous and the paroxysmal; the former is usually associated with organic disease of the stomach, the latter with gastric neurosis and diseases of the spinal cord, especially tabes (gastric crises). He then describes another form which he calls alimentary or digestive. In this type, hypersecretion of gastric juice takes place only after food and is then excessive, up to 300 cc. The acidity, however, may be normal or even below normal, that is to say, there is a true hypersecretion as distinguished from hyperacidity. The male sex was exclusively affected, in his 12 cases. The symptoms are those of nervous dyspepsia with marked emaciation. Motor insufficiency may or may not be present, its relation to the disease has not yet been settled. The diagnosis is best made by the examination of the gastric contents one hour after a dry test breakfast consisting of dry bread or a few crackers. There will be found an excessive amount of contents consisting of a small sediment of food above which there is a colorless liquid. The digestion of starch is markedly impaired. Treatment consists in nourishing food, with avoidance of all substances which stimulate secretion, and a substitution of sugars and dextrins for the starches. Sodium citrate in drachm doses four times a day has proved of benefit.

4. From experimental work on animals as well as from analyses of the gastric contents of patients with gastro-enterostomy, Katzenstein is of the opinion that after every gastro-enterostomy both bile and pancreatic secretions enter the stomach. This occurs continuously just after the operations, becoming periodic later. The time of appearance of these fluids in the stomach is partially dependent, at least, on the sort of food used in the test meal. Following a test meal which is free from fat, bile and pancreatic juice appear in the stomach in about one and one-half hours; while when fat is administered they are present in a half hour. Katzenstein feels that in this latter instance the secretion is called forth by reflex stimulation. The results of the presence of these alkaline substances in the stomach is a diminution of the acidity by a chemical union on the one hand, and, on the other, by an inhibition of the production of hydrochloric acid. It is further shown that while pepsin is rendered inert by even transient alkalinity, the action of trypsin is only diminished in a slight degree by a transient acidity. Pepsin-hydrochloric acid digestion is practically absent following a gastro-enterostomy. In regard to gastric ulcer Katzenstein feels that hydrochloric acid is the main factor in its maintenance, if not also in its causation. Therefore, by regulating the diet after a gastro-enterostomy for ulcer conditions may be made favorable for its healing. Such a diet should consist of fatty food given in small quantities at frequent intervals, together with a liberal amount of water. It is also suggested that the favorable action of a gastro-enterostomy on a cancer of the stomach takes place not only by improving the motility of the stomach, but also by a digestive action of the trypsin on the cancer itself.

MUNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 4.
JAN. 22, 1907.

1. *RUMPF. *The Effect on the Heart and Blood Pressure of Pressure over Tender Areas.*
2. GAUSS, C. J. *A Report of One Thousand Cases of Labor in Scopolamin Seminarcosis.*
3. PRELLER. *The Combined Use of Scopolamin and Morphin in Obstetrics.*
4. PENKERT, M. *The Technic of Lumbar Anesthesia in Morphin-Scopolamin Narcosis in Abdominal Surgery.*
5. HIRSCHEL, G. *The Operative Treatment of Dangerous Gastric Hemorrhages.*
6. VOGEL, K. *On Operations of the Hands and Their Preparation.*
7. MOHR, H. *Incarceration of Appendices Epiploicæ in Hernia.*
8. THEILHABER, A. *Alcohol in Obstetrics and Gynecology.*
9. *ADLER, R. *On Cribbing.*
10. FISCHER, K. *A Case Illustrating the Etiology of Intussusception.*
11. DEHNER. *Removal of a Foreign Body from the Abdomen.*
12. GROSSE, O. *Two Pencils in the Urethra Removed by Operation.*

1. Rumpf has found that pressure over tender points, especially in traumatic neurosis and neuralgia, may cause marked changes in the action of the heart, namely, increase in the rate which may be preceded by a decrease of short duration; decrease in the volume of the pulse, occasionally also irregularity; cyanosis of the face, diminution or in some cases increase in the blood pressure. These changes, if the examination is carried out in such a way as to exclude sources of error, may be of diagnostic importance, especially in medico-legal cases.

9. Adler recommends warmly Bouveret's method for

the treatment of cribbing, which consists in the wearing of a plate which holds the mouth open. This effectually prevents the swallowing of air. The plate is to be removed during meals.

BERLINER KLINISCHE WOCHENSCHIFT, No. 46.
Nov. 12, 1906.

1. *CLAUS and KALBERLAH. *Chronic Icterus.*
2. WIMMER, A. *A Case of Extensive Thrombosis of the Cerebral Sinuses.*
3. v. ALDOR, L. *Sahli's Desmoid Reaction.*
4. ROSENBACH, O. *Is There Any Exception to the Rule that in Paralysis of the Recurrent Laryngeal the Abductors of the Vocal Cords Show Loss of Function before the Adductors.*
5. NEUMARK, H. *Plastic Induration of the Penis and Dupuytren's Contracture.*
6. LÖWENTHAL, S. *The Action of Radium on the Human Body.*

1. Claus and Kalberlah report two cases of permanent chronic icterus occurring in brothers. There was also a family history of biliary affections. This interesting symptom-complex is characterized by a permanent icterus of moderate intensity, usually without bile pigment in the urine, and with normal colored stools. It has a strong tendency to occur in certain families, and is often congenital. The congenital cases, as a rule, have enlarged spleens with normal livers, whereas in those occurring later in life the liver is frequently involved. The cause of the disease is unknown, and probably not the same in all cases. The prognosis is good as to life, but the icterus remains permanent.

Nov. 19, 1906.

DEDICATED TO B. FRÄNKEL ON HIS SEVENTIETH BIRTHDAY.

1. SEMON, F. *The Therapeutic Value of Silence in the Sanatorium Treatment of Tuberculosis of the Larynx.*
2. v. SCHRÖTTER. *A New Method of Illuminating Cavities.*
3. KILLIAN, G. *The Basic Principles of Modern Rhino-Laryngology.*
4. CHIARI, O. *Two Cases of Extraction of Foreign Bodies from the Bronchi by Means of Killian's Direct Superior Bronchoscopy.*
5. *LERMOYEZ, M. *The Contagiousness of Ozena.*
6. *MASSEI, F. *The Significance of Anesthesia of the Entrance to the Larynx in Paralysis of the Recurrent Laryngeal Nerve.*
7. ONODI, A. *Anatomical Studies on the Relations between the Posterior Ethmoid Cells, the Sphenoidal Sinus and the Optic Canal, in Connection with the Nasal Origin of Retro-bulbar Neuritis.*

5. Lermoyez claims that ozena is a contagious disease, and brings forward strong clinical evidence in favor of this view. He believes the coccobacillus of Perez to be the cause of the disease. This organism gives off the characteristic odor in cultures, and inoculated intravenously, causes atrophic rhinitis in animals. Cases of ozena should not come into close contact with the healthy, on account of the imminent danger of infection.

6. A bilateral anesthesia of the entrance to the larynx, according to Massei, is an almost constant symptom of paralysis of the recurrent laryngeal nerve, often preceding the motor paralysis. This observation makes it probable that the recurrent carries sensory fibers.

Nov. 26, 1906.

1. *KRAUSE, F. *Transplantation of the Big Toe to Replace the Thumb.*
2. *ZUPNIK, L. *Meat Poisoning and Paratyphoid.*
3. *GENGOU. *Antituberculous Sensibilisators (Amboceptors).*
4. FEIN, J. *Lupus of the Nasal Mucous Membrane.*
5. APFELSTEDT, K. *Protection and Repair of the Perineum.*
6. MUNTER, S. *Hydrotherapy in Febrile Diseases.*
7. ROSENTHAL, F. *Experience with the New Artificial Food "Visvit."*

1. Krause reports successful transplantation of the big toe to replace the thumb, of which only one half the basal phalanx remained. The first phalanx of the toe was first partially resected, and then the thumb was grafted on to it, being held in position by a plaster cast. The strange posture was maintained by the patient for three weeks without great discomfort; at the end of this time, union having taken place, the bridge of tissue connecting the two parts of the toe was severed. Good function was obtained.

2. Polemic against Trautmann.

3. Gengou injected various acid-fast bacilli into guinea pigs (human, avian, and fish tubercle bacilli, acid-fast bacilli of butter, etc.), and found that each type caused the production of antibodies which were effective against all members of the acid-fast group, with a few exceptions. He used the method of Bordet and Gengou, which rests on the principle of absorption of the complement.

DEUTSHCE ARCHIV FÜR KLINISCHE MEDIZIN.
BD. 88, HFT. 1-3, 1906.

1. *FELLNER, JR. *Clinical Observations on the Value of the Determination of the Pulse Pressure in Cardiac and Renal Disease.*
2. ERB, JR. *The Influence of Blood Pressure Variations on the Concentration of Arterial and Venous Blood.*
3. *DIETLEN. *The Size and Position of the Normal Heart and Its Dependence on Physiological Conditions.*
4. WASSMUTH. *The Change in the Conductivity of the Urine in the Presence of Albumin.*
5. GRÜNWALD. *Functional Renal Diagnosis.*
6. BETTMANN. *Herpes Sexualis.*
7. *SICK. *Observations on the Secretion and Motility in the Fundus and Pyloric Portion of the Stomach.*
8. POLLAK. *Uric Acid Excretion in Gout and Alcoholism.*
9. *SIMONS. *Very Light Percussion ("Schwellenwerts-perkussion") of the Heart in the Cadaver.*
10. *MORITZ. *Some Remarks on the Percussion Outlining of the Total Anterior Surface of the Heart.*
11. *DIETLEN. *Percussion of the True Heart Boundaries.*
12. VÖLKER. *The Relation of Urinary Acidimetry According to Moritz to the Method of Freund-Lieblein.*
13. *ABELES. *The Relation of Proteus and Typhoid Agglutinins to Each Other.*

1. Pulse pressure is the difference between the systolic and diastolic blood pressures and corresponds to the true size of the pulse. The pulse pressure multiplied by the pulse rate within certain limits is a measure of the volume of blood flow. Though data obtained for the brachial artery may not correspond with conditions in the aorta and other vessels, they give some information as to the general circulation. Fellner determined systolic and diastolic pressures by means of a broad cuff Riva-Rocci apparatus in various conditions and points out the advantages of a knowledge of the pulse pressure in certain diseases, as compared with systolic pressure changes, the latter merely measuring vascular tension. Especially is this apparent in chronic nephritis with high systolic pressure. In these cases there may be a rise in systolic pressure either with an improvement or deterioration in the patient's condition. A corresponding rise in pulse pressure is of good prognostic omen, a fall of bad, indicating an increased renal insufficiency. It is possible here for toxic products by peripheral constriction to both raise systolic pressure and lower pulse pressure, and consequently a determination of the latter is a great help in prognosis.

In aortic insufficiency a high pulse pressure is of diagnostic value, but its variations are of slight prognostic importance since many disturbing factors enter. The particular value of pulse pressure determinations in cardiac cases with broken compensation is in connection with a determination of the value of digitalis therapy, and here it is very valuable for a rise indicates good effects from the drug, whether systolic pressure rises or falls. In arteriosclerosis the results are very confusing and pulse pressure determinations of comparatively little value. In general, the determination of pulse pressure is of much more value than a determination of systolic pressure.

3. Dietlen has outlined the heart by means of the orthodiagraph in two hundred and sixty-one individuals in which no evidence of cardiac abnormality could be found. This paper contains in the form of tables data

regarding age, height and weight of the individuals, form and measurements of the thorax and measurements of the diameters and form of the cardiac outline and its relations to the chest wall, arranged so that easy comparison can be made of any given case with the average for that age, sex and size, in order to determine whether it falls within the limits regarded as normal. Certain facts are brought out by these data. The heart is found to increase in size with the height of the individual, but to bear a still closer relation to body weight. The importance of using the midsternal rather than the parasternal line as a fixed point for measurements is emphasized. Notwithstanding a decrease in body weight in old age, there is not a corresponding decrease in heart size, which may be regarded as a physiological senile dilatation. The upper border of the heart outline is usually higher in women (second interspace) than in men (third rib), except in old women, when it becomes lower. The apex beat usually lies at a higher level than the apex of the cardiac silhouette, the latter corresponding to the tip of the right ventricle, the former due to the contraction of the left. The apex beat is usually inside the left border (42% of cases). In women a larger part of the heart lies to the left of the median line than in men. [The chief value of this paper is its tables which embody much data regarding cardiac outlines determined by a most accurate method, orthodiagraphy.]

7. By means of a rubber ball introduced into the stomach and connected with a manometer Sick has studied the peristaltic motions of the stomach, recording them as tracings on a revolving drum. The introduction of food into the stomach causes at first an active relaxation of the muscle of the fundus. This is followed by contractions. Sick was able to place his apparatus either in the fundus or in the pyloric end of the stomach and thus compare the contractions at each place. Further by an ingenious arrangement he was able to withdraw small portions of stomach contents at intervals from the same part of the stomach in which his apparatus for recording peristaltic motions lay. In addition to cardiac respiratory movements Sick obtained in his tracings from the cardiac end of the stomachs of normal individuals rather low gradual curves of slighter gastric contractions, while in the pyloric end there was a curve with more abrupt higher rise, followed by a slightly less abrupt fall. The former was present both during gastric rest and activity, the latter only during activity. In cases of gastric hypermotility, while the difference between pyloric and cardiac ends was still apparent, the contractions in the latter were more powerful than in the normal. In cases of atony there was little muscle contraction and no distinctive pyloric type. The analyses of food withdrawn during the observations showed that food, even semiliquid food, is not thoroughly mixed in the fundus, but settles in layers, the more fluid portions at the top. After fifteen to twenty minutes free HCl appears in the mixture of food and gastric juice in the fundus. After forty or fifty minutes the pyloric portion becomes highly acid, but there is no evidence of the secretion of acid in the pyloric end though pepsin and rennin are formed there as well as in the fundus. In cases of decreased secretory activity the difference between the gastric juice in the two ends of the stomach becomes less. A practical point brought out by this work is that ambulatory cases may yield chemical analyses quite different from the same case in the hospital at rest. Also after being emptied and given a night's rest, the stomach has a greater secretory power than when recently relieved of food. This shows that the secretory power of the stomach undergoes fatigue with lessened activity.

9. "Schwellenwertsperkussion" is the name given to a just audible percussion (in the intercostal spaces) with one finger, using the other as plexímeter. Simons believes this gives the most accurate outline of the relative cardiac dullness. The determination of the absolute cardiac dullness the author considers insufficient because numerous important diseases of the heart muscle change it scarcely if at all, while in other cases the parts of the heart adjacent to the thoracic wall change later than the other parts. Moreover, changes in the absolute cardiac dullness allow no definite conclusions as to a change in the whole heart. Simons practiced this method on the cadaver to show its accuracy, not to give data as to the cardiacoutline in the living. He compared his outline with the actual size of the heart by means of long pins thrust into the chest. He found the correspondence close even to the lower border of the heart. Simons believes this very light percussion has no appreciable effect on deep structures, but the differences obtained are the result of entirely superficial tension changes dependent on the presence of a solid mass beneath in an elastic environment. In the method both senses, touch and hearing, are utilized.

10. Moritz points out the variations in cardiac percussion outlines given in the various books and compares them with the orthodiagraphic projection of the heart on the chest wall. Orthodiagraphy he points out is to control not to supplant percussion. The latter he carries out as follows: For the right border a strong percussion, especially during maximal expiration, for the left a moderately strong to light percussion, never during expiration, in each with the plexímeter finger parallel to the median line. The farther to the left the heart border, the lighter the percussion should be. Allowing a variation of .5 cm., outlines so obtained agree with the orthodiagraph in 86% for the right border and 70% for the left. In greatly enlarged hearts and narrowed chests come the greatest errors, and in these the apex beat may fall quite wide of the true outline of the left border.

11. Dietlen discusses and gives the outlines of the relative cardiac dullness determined by Moritz's method of percussion and the cardiac outline determined by the orthodiagraph in two hundred and thirty-one cases from the Greifswald and Giessen clinics.

13. Abeles has studied the agglutinating effect of human serum from typhoid, paratyphoid, icteric and normal cases on various strains of proteus and that of rabbits immunized against typhoid or proteus. The result of these studies is the conclusion that no relation exists between the agglutinating substances produced by the two bacteria and consequently the species specificity of the two organisms holds for agglutinins. He explains those cases in which jaundice has been regarded as causing an agglutination reaction for typhoid bacilli as due not to the action of bile in the serum, but to an antecedent typhoid infection. This work was stimulated by the conflicting claims of various workers, some of whom claimed a close agglutination relation between typhoid and proteus organisms.

Correspondence.

LONDON LETTER.

[From our Special Correspondent.]

SIR MICHAEL FOSTER. ROYAL COMMISSION ON TUBERCULOSIS. PROVIDENT DISPENSARIES AND "CONSULTATIONS DES NOURRISSONS." THE "LENO" TREATMENT OF CHRONIC ULCERS. ANESTHETICS.

LONDON, Feb. 4, 1907.

Mr. Editor: The name of the late Michael Foster is no doubt well known to your readers. Without contributing any considerable mass of concrete additions to scientific knowledge, Sir Michael Foster, by his gift of pellucid description and exposition, as well by his remarkable faculty for stimulating the mental energies of his pupils as by the forceful glamour of his personality, was enabled to achieve results of no mean order. He created the Biological School at Cambridge, and during the thirty years of his active directorship not only was there much valuable work turned out but distinguished pupils also were given to science.

Sir Michael's breadth of mind and exceptional powers of oratory were nowhere better exemplified than in the lecture on the History of Physiology delivered at San Francisco, in 1900. Almost his last public act was his signature of the second interim report issued by the Royal Commission on Tuberculosis, of which he was chairman. The work already reported, and the vast amount of evidence accumulated, especially by the German Commission since Koch's dictum in 1900, made it a foregone conclusion, that the second term of reference, *viz.*, "Whether animals and man can be reciprocally

infected" with tuberculosis, should be answered in the affirmative. The essential points established are that a considerable proportion of the cases of human tuberculosis is of bovine origin, and that milk is the vehicle of infection. These facts are all that is necessary to confirm existing legislation, and furnish the warrant, or rather an inexorable demand, for even more stringent regulations with regard to the segregation or destruction of tuberculous bovines and for the prohibition under penalty, of the sale of tubercle-tainted milk.

Over-ridden as we are in England by fanatical antivivisectionists (whose vogue is such that they are permitted to erect in one of London's Public parks — "The heritage of the people for ever" — a bronze statue of a dog with inscription recording the brutal treatment to which it was subjected by scientific assassins), it will be interesting to watch how this report, pregnant with importance to the public weal, will be received by those who deny that any result of even the smallest practical value has ever been attained by animal experiments. Since the Bayliss fiasco they have been a little bit chary of going to law, but inasmuch as these last results have been attained by the use of public funds, they can never have a better opportunity to prove their point!

London has begun to wake up over a matter in which Paris has given us such an excellent lead, — that of milk depots and "*consultations des nourrissons.*"

In Finsbury, more particularly, great results have been attained by the combined efforts of the local practitioners and local philanthropic organizations, and now there seems to be some chance of the various provident dispensaries of the metropolis assuming the rôle played in Paris by special institutions. All our advances in sanitation have left untouched the appalling infantile mortality of great cities; and although we know that more of it is due to ignorance than to conditions ineradicably planted in the social system, no organized effort at all commensurate with the evil has been made to remedy it.

Many people look to these provident dispensaries, which in some instances date their foundations earlier than most of the hospitals, and which draw their patients from a class one degree removed from that for which the hospitals are *supposed* to exist, for a solution of the problem of hospital abuse.

All patients at these dispensaries pay, directly or indirectly, something for treatment and medicines. The visiting staffs at these, as at all hospitals in London, are, of course, entirely honorary, but no use is made of the clinical material for teaching purposes. It is a great loss to medical education in London that none of the wards of the Poor Law Infirmaries to which chronic cases of every description get ousted by the pressure of work at the hospitals are available for the instruction of students. The young practitioner, in London, leaves his medical school almost entirely ignorant of the terminal stages of many chronic diseases, and a visit to the Salpêtrière or the Hôpital St. Louis is often a revelation to him; but near as Paris is to us now, it is ridiculous to be obliged to seek there what we might see in plenty at home.

Experience amongst post-graduate students, many of whom have visited clinics in all parts of the world, leads me to speak of a method of treatment of chronic ulcers of the leg which is extremely successful and yet, it seems to me, almost unknown. If it be familiar to your readers, they must forgive me. It consists in the application of a bandage of open-wove, square-meshed canvas, which permits the escape of discharges and, therefore, does not require renewal more often than once a week or once a fortnight. This "Leno," as it is called in the trade, is "dressed" with boracic acid and starch and is applied wet, very evenly and uncrossed, over the raw surface; but with a fair tension upon the edematous parts below, and firmly above, as far as the knee.

In drying it contracts a little, exerting thereby an equable and gentle pressure which not only secures it in place, but procures in a remarkably short time a levelling of the sharply cut edges, and an evenness of surface, together with uniform granulations, which permit rapid healing from without inwards, and peripherally from any surviving "islands" of epithelium.

Outside the "leno" which the patient is instructed to leave untouched, a simple dressing of lint cut to the shape of the ulcer and soaked in boracic lotion (16 gr. to 1 oz.) is applied and covered by wool and an ordinary roller bandage; this dressing is renewed once or twice daily by the patient, who is told to wash the surface free from discharge by a gentle stream of water. It should be stated that a foul ulcer must be cleaned by repeated hot fomentations, before the "leno" method is adopted; the results obtained are almost as surprising to the surgeon as they are gratifying to the patient.

It is no uncommon thing to see ulcers of twenty-five years' standing, soundly healed in three months and that without the patient's ever lying up for a single day. It is this last feature which makes the method invaluable in out-patient practice. I need hardly say that as a preparation for skin grafting the procedure is very valuable and that in fixing the grafts themselves the "leno" is very useful.

I must mention a new apparatus devised by Hewitt for the administration of the chloroform and ether mixture particularly, though it is also adapted for ethyl chloride. It is figured in the new edition of his book on anesthetics, and is still on its trial, but from what I have seen of its use in his own hands, it is not only simple and compact, but perfectly safe, both in principle and practice; it is likely to come into very general use.

Professor Barker, of University College, who obtained such good results with the Schleich infiltration method is now devoting his attention to spinal anesthesia. At the Cancer Hospital too, it is employed but on the whole, there is no marked tendency in London to desert the inhalation routine.

C.

UNIVERSITY OF PENNSYLVANIA MEDICAL SCHOOL RAISES REQUIREMENTS FOR ADMISSION.

PHILADELPHIA, February, 1907.

Mr. Editor: I take the liberty of sending you a statement of the requirements for admission to the Medical Department of the University of Pennsylvania, which have recently been adopted by the Board of Trustees.

According to the plan finally adopted, the requirements will be increased gradually beginning with the annual session in September, 1908, and reach the maximum September, 1910. The present requirements cover four years graded course in a high school or its equivalent. The essential points in the new requirements are as follows:

I. For the session 1908–1909, in addition to the present requirements, either one of two foreign languages, French or German; (2) physics; (3) inorganic chemistry, including qualitative analysis; (4) general biology or general zoölogy.

II. For the session 1909–1910, in addition to the requirements of 1907–1908, the candidate must have completed successfully work equivalent to that prescribed for the Freshman Class in colleges recognized by this university.

III. For the session 1910–1911, in addition to the requirements of 1907–1908, candidates must have completed successfully work equivalent to that prescribed for the Freshman and Sophomore classes.

IV. Candidates who have successfully completed at least three years of an accepted college course may be admitted with conditions in chemistry, physics and general biology or zoölogy.

The maximum requirement is two years of collegiate training, including biology, chemistry and physics. The two additional years of collegiate training are regarded as an adequate preparation for entrance into a professional school. The importance of the candidate having had instruction in subjects leading to the study of medicine is so generally recognized that biology, chemistry and physics have been added to the requirements. This combination of special and general training is, without doubt, a much more logical requirement than a collegiate degree which does not imply any special preparation for medical studies.

Truly yours,

CHARLES H. FRAZIER, M.D.,
Dean.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 9, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,670	482	Quincy	8	—
Chicago	783	282	Waltham	5	—
Philadelphia	—	—	Gloucester	—	—
St. Louis	—	—	Pittsfield	13	1
Baltimore	224	69	Brookline	9	1
Cleveland	—	—	North Adams	5	1
Buffalo	—	—	Chicopee	6	3
Pittsburg	—	—	Northampton	11	3
Cincinnati	—	—	Medford	8	—
Milwaukee	—	—	Beverly	5	—
Washington	—	—	Hyde Park	3	2
Providence	93	28	Newburyport	—	—
Boston	221	42	Leominster	4	—
Worcester	56	19	Melrose	6	2
Fall River	48	18	Woburn	6	2
Cambridge	28	5	Marlborough	8	3
Lowell	48	14	Westfield	4	1
Lynn	24	5	Peabody	—	—
New Bedford	29	9	Revere	1	—
Springfield	27	3	Clinton	4	1
Lawrence	24	9	Attleboro	3	0
Somerville	17	4	Adams	2	—
Holyoke	26	9	Gardner	—	—
Brockton	18	3	Milford	6	1
Malden	14	5	Weymouth	7	1
Salem	15	5	Framingham	—	—
Chelsea	16	—	Watertown	1	0
Haverhill	14	1	Plymouth	—	—
Newton	8	2	Southbridge	8	2
Fitchburg	6	1	Wakefield	—	—
Taunton	—	—	Webster	—	—
Everett	7	1			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED FEB. 14, 1907.

WHITE, J. H., surgeon. Directed to proceed to Jump Point, La., for special temporary duty, upon completion of which to rejoin station at New Orleans, La. Feb. 12, 1907.

COFER, L. E., passed assistant surgeon. Relieved from temporary duty at Ellis Island, N. Y., effective Feb. 3. Feb. 9, 1907.

COFER, L. E., passed assistant surgeon. Granted leave of absence for sixteen days beginning Feb. 4. Feb. 9, 1907.

COFER, L. E., passed assistant surgeon. Directed to proceed to Coatzacoalcos and Salina Cruz, Mexico, and San Francisco, Cal., for special temporary duty, upon completion of which to rejoin his station at Honolulu, Hawaii. Feb. 11, 1907.

GLOVER, M. W., passed assistant surgeon. Granted five days' leave in Jan., 1907.

GLOVER, M. W., passed assistant surgeon. Leave of absence granted for one month from Jan. 12, 1907, amended to be effective from Jan. 23, 1907. Feb. 11, 1907.

BOGGESS, J. S., passed assistant surgeon. Upon the return of Assistant Surgeon E. H. Mullan, relieved from temporary duty at Perth Amboy, N. J., and directed to report to the Medical Officer in Command, Stapleton, N. Y., for duty and assignment to quarters. Feb. 9, 1907.

SALMON, T. W., assistant surgeon. Granted leave of absence for two days in Jan., 1907, under paragraph 191, Service Regulations.

ASHFORD, F. H., assistant surgeon. Granted leave of absence for one day in Jan., 1907, under paragraph 191, Service Regulations.

MILLER, W. W., assistant surgeon. Granted leave of absence for one day in Jan., 1907, under paragraph 191, Service Regulations.

DELGADO, J. M., acting assistant surgeon. Granted leave of absence for thirty days on account of sickness, from Jan. 1, 1907. Feb. 8, 1907.

FOSTER, S. B., acting assistant surgeon. Granted leave of absence for eleven days from Feb. 9, 1907. Feb. 12, 1907.

GLASCOCK, A., acting assistant surgeon. Granted leave of absence for one day in Jan., 1907, under paragraph 210, Service Regulations.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted leave of absence for fourteen days from Feb. 4, 1907. Feb. 7, 1907.

KENNARD, K. S., acting assistant surgeon. Granted leave of absence for one day in Jan., 1907, under paragraph 210, Service Regulations.

MONCURE, J. A., acting assistant surgeon. Granted leave of absence for thirty days from Feb. 10, 1907. Feb. 13, 1907.

WETMORE, W. O., acting assistant surgeon. Granted leave of absence for six days in Jan., 1907, under paragraph 210, Service Regulations.

WILSON, J. G., acting assistant surgeon. Granted leave of absence for two days in Jan., 1907, under paragraph 210, Service Regulations.

WOODS, C. H., pharmacist. Granted leave of absence for thirty days from Jan. 7, on account of sickness. Feb. 12, 1907.

ALLEN, G. C., pharmacist. Directed to report to Surgeon W. G. Stimpson, chairman of board, for physical examination to determine his fitness for promotion to grade of pharmacist of the first class. Feb. 7, 1907.

ROGERS, EDWARD, pharmacist. Directed to report to Surgeon P. H. Bailhache, chairman of board, for physical examination to determine his fitness for promotion to grade of pharmacist of the first class. Feb. 7, 1907.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING FEB. 16, 1907.

L. H. SCHWERIN, acting assistant surgeon. Detached from the "Celtic," when placed out of commission, and ordered to the Naval Hospital, Norfolk, Va.

R. G. HEINER, assistant surgeon. Ordered to additional duty at the Naval Proving Grounds, Indian Head, Md.

APPOINTMENTS.

The following Assistants have been appointed for the remainder of the academic year at the Harvard Medical School: Cleaveland Floyd, M.D., in Bacteriology; Joshua Clapp Hubbard, A.B., M.D., in Surgery; Harris Peyton Mosher, A.B., M.D., in Otology; David Harold Walker, M.D., in Otology.

Dr. Edgar Garceau has been appointed Consulting Gynecologist to the City Hospital of Quincy, Mass.

RECENT DEATHS.

DR. ADOLPH RUPP, of New York, died on Feb. 14, from cardiac disease. He was born in Brooklyn, N. Y., in 1856, and was graduated from the medical department of the University of the City of New York in 1877; after which he spent some time in post-graduate study at the German universities. He devoted himself more especially to laryngology and otology, and at the time of his death was aural surgeon to the Metropolitan Nose, Throat and Ear Hospital. Dr. Rupp was one of the translators of Ziemssen's Cyclopædia of General Medicine.

DR. CLAUDIUS VAN DEUSEN, a retired physician of Leeds, near Catskill, N. Y., where he practised for over fifty years, died at his home in that village on Feb. 13, at the age of eighty-three years.

BOOKS AND PAMPHLETS RECEIVED.

National Association for the Study and Prevention of Tuberculosis. Transactions of the Second Annual Meeting, Washington, D. C., May 16 to 18, 1906. Lancaster, Pa., 1906.

Fibroid Tumors of the Uterus. By Charles P. Noble, M.D. Reprint.

Blakiston's Quiz-Compends. A Compend on Bacteriology, Including Animal Parasites. By Robert L. Pitfield, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

The Muscles of the Eye. By Lucien Howe, M.A., M.D. In two volumes. Vol. I. Illustrated. New York and London: G. P. Putnam's Sons. 1907.

The Overtime Bill. Would Its Provisions Benefit or Injure Labor? By William Whitman.

The Diagnosis and Treatment of Intussusception. By Charles P. B. Clubbe. Edinburgh and London: Young J. Pentland. 1907.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Edited by Joseph D. Bryant, M.D., and Albert H. Buck, M.D. In eight volumes. Vol. II. Illustrated. New York: William Wood & Co. 1907.

Original Articles.

A CONTRIBUTION TO THE STUDY OF HYDRONEPHROSIS.*

BY ARTHUR TRACY CABOT, A.M., M.D.,
Surgeon to the Massachusetts General Hospital.

MUCH confusion still exists in the minds of the profession as to the relations of false and true hydronephrosis. This study of personal cases is offered as a contribution towards a right understanding of these wholly distinct and different conditions which closely resemble each other clinically.

In true hydronephrosis the sac which contains the fluid is the distended pelvis of the kidney, and as the internal pressure increases, the parenchyma of the kidney becomes stretched and thinned, forming sometimes no inconsiderable part of the wall of the cavity.

In false hydronephrosis the fluid is contained in a sac outside the kidney.

The site of this collection of fluid exactly corresponds to the position of a hydronephrotic kidney and may lead to a mistaken diagnosis. So close is the similarity, in size, position, consistency and mobility, that no case of traumatic hydronephrosis can be accepted as an instance of true hydronephrosis unless proved by dissection in operation or autopsy.

In the BOSTON MEDICAL AND SURGICAL JOURNAL, Feb. 22, 1883, I reported a case of traumatic hydronephrosis which at the time I believed to be an example of true hydronephrosis brought about by some temporary stoppage of the ureter by blood clot or otherwise, due to the trauma. I wish now to review that case and to correct the mistake made in my original report of it.

CASE I. The patient was a boy of ten, who, three months before, had fallen down stairs and immediately after had passed bloody urine. Following this accident a tumor formed in the left renal region, was several times aspirated and a urinous fluid obtained. As it constantly refilled after aspiration an incision was made into it. The cyst wall was found immediately beneath the muscles. "The finger passed into the cavity felt" what I described in my report as "a soft nodular mass, probably the kidney, in the posterior part of the cyst." Drainage was introduced and as the boy made a quick and complete recovery no further examination of the condition was possible.

I supposed at the time, that the sac opened was a greatly dilated renal pelvis and that the kidney was felt from the inside, as it were. This explanation never fully satisfied me, for the mass which was in the proper location for the kidney projected into an otherwise smooth-walled globular cavity; whereas in true hydronephrosis the distended kidney forms, as I have said, a part of the wall of the cavity and the only projections from it are the flattened papillæ and the walls separating the different calices which stand out and give that portion of the sac a multilocular arrangement.

* Read at a meeting of the Surgical Section of the Suffolk District Medical Society, Dec. 5, 1906.

Subsequent experience has convinced me that this mass was indeed the kidney (felt from the outside) which had been ruptured by the trauma, and that the cavity which I took, at the time, for a greatly dilated renal pelvis was an extra renal cavity in which the urine was confined after its escape from a rent in the renal pelvis.

False hydronephrosis of this sort was not a well-recognized condition at the time of my first experience with it. Since that time it has been somewhat investigated and is now better understood.

In many cases of renal contusion or rupture a tumor is to be felt occupying the site of the kidney and extending down well towards the brim of the pelvis. This tumor is produced by an effusion of blood about the kidney. When the laceration of the kidney opens its pelvis this effusion contains urine as well as blood.

Writing in 1901 Morris says: "The most characteristic effect of rupture into the pelvis of the kidney is extravasation of urine. This takes place principally in the neighborhood of the kidney, forming with the blood a large retro-peritoneal tumor, more especially where a free passage along the ureter is interfered with; under these circumstances a large cyst may develop with a smooth inner wall containing urine mingled with detritus of blood." In another place he says: "Such a tumor, whether a hemato-nephrosis or a circumrenal extravasation, is rounded in form and slightly movable both from side to side and in the antero-posterior direction."

It is interesting, in our endeavor to understand these cases, to study the anatomical conditions which confine this effusion about the kidney and prevent it from becoming diffused in the loose cellular space behind the peritoneum.

This post-peritoneal space is so loose and readily opened up that it might be expected, if urine and blood were poured freely into it, that they would quickly spread and form a diffused extravasation. In some cases of extreme violence this occurs, but usually the effused fluids are confined about the kidney in the form of a clearly defined tumor. This limitation of the effusion cannot reasonably be explained in all cases by the formation of a limiting wall of "inflammatory formation" (Morris), for it is observed in cases where the effusion is very rapid, and a circumrenal tumor is apparent within a few hours of the injury. It is inconceivable that a strong limiting wall should form by inflammatory or other action so quickly.

This limitation of the effusion must then be due to the confining action of an already existing membrane.

My observation of cases, together with careful dissections, has convinced me that the wall of the cavity in these false hydronephroses is the fibrous outer wall of the so-called fat-capsule of the kidney.

This tough capsule plays an important and beneficent part in thus confining effusions about the kidney. When the effused fluid is urine, extensive urinary infiltration is prevented; while

in cases of hemorrhage from a ruptured kidney the blood presently fills this capsule tightly and by its own internal pressure brings the bleeding to a standstill.

The subsequent history of one of these cases will vary according as the effusion contains urine or not.

If the effusion consists of blood alone it will usually disappear by absorption. When absorption is slow, aspiration of the serous part of the hematoma may hasten its disappearance.

When the effusion contains urine it may form a false hydronephrosis such as I described above. Such a false hydronephrosis in which the fluid is mainly urine if not cured by one or two aspirations, as has not infrequently occurred, may be confidently expected to yield to a simple incision with drainage.

A mixed effusion of blood and urine may lead to suppuration and is pretty certain to do so if any inflammation exists in the kidney or its pelvis at the time of the accident.

In a healthy patient such a mixture of blood and urine may, however, disappear and cure itself.

The following case illustrates this condition:

CASE II. A young man while playing football was thrown against a wooden bench and suffered a severe contusion of the right loin. This was followed by hematuria, and a tumor presently appeared in the right side which simulated a greatly enlarged kidney. It was elastic and somewhat tender to palpation.

I saw the patient in consultation with Dr. Chas. E. Abbott, of Andover, Mass., on about the third day after the accident. There was now an indistinct sense of fluctuation in the tumor. I introduced an aspirating needle and drew off seven or eight ounces of a watery fluid, dark purplish red in color. This did not reduce the size of the tumor materially but it made it soft and flaccid. Aspiration was stopped by the plugging of the needle with old blood clot.

An examination of this fluid on the following day showed it to contain abundant urea, and to be evidently a mixture of urine and blood.

Supposing, at that time, that such an effusion of urine must necessarily lead to suppuration, I expected to receive a summons within a few days to open and drain the sac; but, contrary to expectation, the tumor steadily decreased in size and finally disappeared.

It is questionable whether this disappearance of the effusion is due entirely to absorption or whether drainage through the rent in the renal pelvis plays any important part in its removal.

Passing from this false hydronephrosis to true hydronephrosis I have an interesting observation to report in which both conditions, the false and the true, co-existed in connection with one kidney.

CASE III. J. S. W., Jr., a well developed boy of eleven years, was seen by me March 20, 1897, in consultation with Dr. E. H. Stevens, of Cambridge. His history was as follows:

Since the age of one and a half years he had had repeated attacks of severe abdominal pain. At first these came every week and lasted several hours. Gradually they became less frequent but were of longer duration. Presently it was noticed that a fullness appeared in the left loin with each attack and disappeared as the pain subsided. These attacks were usually accompanied by vomiting and by high fever.

The last previous attack was seven months ago and lasted about two weeks. Two weeks before I saw him he began to have pain in the left side and presently a tumor in that side was noticed. The pain was of moderate severity until four days ago, but since then it has been very severe. Two days ago Dr. Stevens aspirated the tumor and drew off eighteen ounces of fluid of specific gravity 1,006 and containing urea. The tumor rapidly refilled and when I saw the patient it was as tense as ever and the boy was suffering great pain. It extended well up under the ribs and downwards to the brim of the pelvis.

Operation was advised and under ether we opened the tumor widely in the lumbar region. A large quantity (not measured) of bloody fluid escaped and it was then seen that the fluid was contained in a sac the wall of which seemed to be the outer layer of the fat-capsule; and at the bottom of this sac lay a collapsed hydronephrotic kidney with a rent in its wall three fourths of an inch in length, which opened the kidney through the thin wall of one of the calices. This opening was enlarged and the finger, introduced, showed the whole kidney to be reduced to a thin walled sac with numerous irregular pockets. An examination as careful as could be made with a rather poor light failed to show which pocket represented the pelvis and the ureter could not be made out. The kidney was drawn up and sutured to the lumbar fasciæ in the hope of thus straightening the ureter; and the rent in the kidney was closed by a continuous catgut suture.

For two days the boy was comfortable, and then he began to have severe pain in the side and the swelling was found to have returned to almost the same size as before operation. It was found that the tumor now was the greatly distended hydronephrotic kidney, which had filled up tensely since the rent in its wall had been closed. It presently became necessary to puncture the kidney and put in drainage. The wound soon healed down to the tube and with a bottle attached to a swathe to collect the urine he kept pretty comfortable for two years.

In March, 1899, he entered the Massachusetts General Hospital to have an operation for closure of the fistula. At this time he had about ℥xxx of urine each day from the bladder and ℥ xx from the opening into the kidney. The urine coming from the renal fistula was of very low specific gravity while that from the bladder was normal in character. A nephrectomy was done now. When the ureter was reached it was found that just after leaving the pelvis it was looped over a little artery which ran direct from the aorta to the lower part of the kidney. The wall of the ureter was very thin at the bend where it was caught up over this vessel and the caliber was so narrowed that the finest probe would not pass. The operation was successfully completed although the separation of the sac was difficult on account of firm adhesions. The boy made a good recovery and has been perfectly well ever since.

This was properly a case of congenital hydronephrosis. Although the dilatation of the kidney did not make itself noticed until some years after birth, the condition that led to it was a congenital one.

It is an interesting speculation whether it was the assumption of the upright posture which, causing a downward sag in the kidney, tightened the loop of the ureter over the artery and caused

an obstruction which had not shown itself during the horizontal life of the child.

Besides the last case in which a congenital obstruction of the ureter by looping over a vessel caused the hydronephrosis, I have seen one case of congenital hydronephrosis in which the obstruction seemed to be a valvular one at the junction of the ureter with the renal pelvis.

Case IV. A poorly developed boy of four had had a swelling in the left lumbar region since birth. One month previously this tumor had been aspirated and urine had been obtained. It rapidly refilled again and the day before I saw the child he had suffered from pain in the abdomen followed by vomiting. The child was pale and anemic, with quick pulse and respiration rapid and superficial. The temperature had been considerably raised for some time.

When I saw him the abdomen was distended by a tumor which, lying mostly to the left of the median line, extended out and filled the flank, reached well across the middle line, up under the ribs and down over the pelvis. Fluctuation by wave was distinct over this tumor and its character, its position and the previous aspiration of a urinous fluid from it made the diagnosis of hydronephrosis sure. It was felt that the child was rapidly failing and that immediate interference was demanded. He was not strong enough for an extensive operation, consequently a nephrotomy was quickly done and drainage established. In opening down to the sac a cavity was opened containing several ounces of chocolate-colored fluid. It was thought that this was due to leakage from the puncture made with the aspirating needle. The sac was then opened and a large quantity of a similar chocolate-colored fluid was evacuated. The interior of the cavity presented the sacculated appearance of a hydronephrotic sac in which no traces of the kidney could be made out at the time. Drainage tubes were introduced. The child was much relieved by this operation and made a slow recovery.

A month and a half later the temperature which had remained irregular and somewhat raised since the operation fell to normal. The child seeming now in good condition, a nephrectomy was done and the hydronephrosis was enucleated and removed. The sac was quite adherent and the peritoneum was opened during the operation. It was closed by a continuous catgut suture and in no way complicated the result. The boy made a good recovery. The sac presented nothing peculiar. The upper end of the ureter made a nipple-shaped projection into the pelvis in such a way that it was quite clear it must have acted in a valvular manner to close the exit. The ureter was otherwise normal in size with no dilatations.

This case afforded a good illustration of the occasional benefit of a nephrotomy as preliminary to a nephrectomy.

Acquired hydronephrosis. — The cases of acquired hydronephrosis that I have met with have all of them resulted apparently from mobility of the kidney. I refer here to the cases of unilateral hydronephrosis appearing long after infancy, and I exclude many cases of distention of the kidney in which the contained fluid has been purulent, also those in which both kidneys have been distended owing to obstruction in the lower urinary passages.

In a number of the cases that I have seen the distention of the kidney has been only moderate in degree and has disappeared under the influence of posture with raised hips and lowered shoulders. I have also seen manipulation greatly assist in the reduction of a kidney distended in this manner.

I have had two cases in which operation has brought about a cure of hydronephroses of considerable size in kidneys which showed mobility.

In neither of them could a distinct valve formation, such as Fenger has described, be made out. The ureter was, in each case, found to be tortuous just below its emergence from the pelvis, and the obstruction seemed to be due to a folding of it upon itself.

There was nothing to indicate which particular twist of the ureter had been the seat of the obstructive pressure. It is easy to see that an obstruction of this sort may act intermittently until the enlargement of the kidney is sufficient to cause a firm pressure against the kink and make the obstruction a permanent one.

In one of these cases intermittent attacks had been a marked feature. In the other, although the mobility of the kidney was very great, no history of intermittent pain or tumor could be obtained.

The point of especial interest in the two cases of this sort upon which I have operated is that the simple measure I adopted for straightening the ureter seems to have been efficient in restoring the permeability of the canal so that no subsequent filling up of the kidney occurred.

This measure was to insert a bougie through the ureter down beyond the portion that was tortuous.

In this way the various curves of the canal are effaced while the pelvis is contracting and pulling it into shape. Furthermore, and this is I believe most important, " a moderate amount of inflammation is set up in the walls of the ureter, which stiffens them, and attaches them to the parts about and thus tends to keep the form given to the tube." This explanation of the manner in which the bougie may accomplish the permanent correction of the obstructing condition was first given by me in an account of my first case reported to the Surgical Section of the Suffolk District Medical Society in January, 1896.

This case was seen seven months later, and at that time there was no sign of any refilling of the sac, showing that the patency of the ureter had been satisfactorily restored.

The second case only confirmed the good opinion I then formed; for the result has been most satisfactory and there is no sign of recurrence at the end of one and a half years.

I append to this article a brief report of these two cases. In both cases the kidney was fastened in the loin by stitches attaching it to the rib and the fascia.

The end of the bougie was brought out through the opening left for drainage, and it was removed at the end of three days. It was my intention in the second case to have kept it longer, but the bougie was so acted on by the urine that its surface showed a tendency to scale off and on this

account it was removed earlier than had been intended.

It is interesting to note that Dr. Fenger in his instructive and successful operations on valves at the uretero-pelvic junction was in the habit of leaving a bougie in the upper part of the ureter for three or four days. Under these circumstances it is difficult to determine the importance of the plastic operation on the valve for it is conceivable that the action of the bougie, combined with fixation of the kidney, might have worked a cure without further interference with the valve.

Cases of intermittent hydronephrosis due to mobility of the kidney have been cured by fixation of the kidney alone so that it may even be doubted whether the bougie played an important rôle in my cases. While admitting the possibility of such a doubt I am not inclined to accept such an explanation. For both of my cases were instances of persistent hydronephrosis with large loose pelves which could not have pulled sufficiently on the ureter to straighten it even when the kidney was attached well up in place.

CASE V. Miss A., thirty-two years of age. A thin, pale woman. Two years before she had first noticed an enlargement of the abdomen a little to the right of the median line, and in the past year had suffered considerably from abdominal pain, which had been almost constant and was noticed more for a week following catamenia. She had never noticed any symptoms in connection with urination.

Examination of the abdomen showed a large, fluctuating mass which, when lying on her back, lay on the right side, extending up well under the liver and extending down to the brim of the pelvis. When she stood up this mass rested across the lower part of the abdomen, just above the pelvis, and the region about the neighborhood of the liver was then empty.

The catamenial history led to the diagnosis of ovarian cyst, but the position of the tumor when she was on her back strongly suggested a hydronephrotic kidney. Examination of the urine was wholly negative. The great mobility of the tumor made it seem probable that if it were the kidney it had a long meso-nephron, and there was danger that a puncture in the loin might traverse the peritoneal cavity. We therefore thought it wiser to explore by an abdominal incision, which was done March 29, 1895.

The tumor was found to be a large hydronephrotic kidney, which was extremely movable as had appeared by previous examination. With the hand in the abdomen guiding the aspiration, a needle was introduced through the loin and the sac entirely emptied. The abdominal wound was then closed. This operation was followed by no reaction, and the patient made a good recovery.

The examination of the fluid drawn gave the following result: It was of a pale, amber color, with a specific gravity of 1,007, and having a slight trace of albumin. The sediment consisted of brown, granular cells with occasional granular and fibrinous cylinders, like renal casts. The examination for urea showed that the fluid contained 1.01%.

For at least a fortnight there was no sign of any refilling of the cyst, but at the end of that time the tumor began to be noticeable in the loin. Examination of the urine soon after the operation gave a specific gravity of 1,020, a slight trace of albumin. In the sediment hyaline and granular casts, with fat adherent.

The patient was in a rather feeble condition during her convalescence, with edema of the ankles, which postponed further operative treatment. On May 7, her condition being then pretty good, the kidney was opened in the loin, and after it was emptied the ureter could be seen emerging from the cyst by a funnel-shaped opening and running a tortuous course downward towards the pelvis. There was no valvular appearance to the opening of the ureter, nor any condition which could be corrected by incision or other alteration of that orifice.

The mechanical condition which had led to the hydronephrosis appeared to be a twisting of the ureter at some point in its tortuous course, that point not being determinable after the sac was emptied and the parts were lax. It being desirable, therefore, to efface, as far as possible, all of these abnormal twists and turns in the ureter, a gum-elastic bougie, about No. 6, French, was introduced and carried with some difficulty down through the ureter until it reached the neighborhood of the bladder. The sac was sewed to the edges of the wound through the muscles with continuous catgut. A drainage tube was then introduced into the pelvis of the kidney, and the bougie was left *in situ*.

The recovery was rather slow, but as far as the healing of the wound went, was uneventful. The bougie was removed at the end of three and a half days, and the drainage tube was out in nineteen days.

This patient was seen seven months later and, although there had been at times some discomfort in the abdomen, there was no sign of any filling up of the kidney.

CASE VI. Mrs. B., fifty-four years of age, was brought to me in May, 1905, by Dr. G. C. Smith, of Boston.

The patient gave a history of pelvic and low abdominal pain intermittently during middle life. This had ceased five years previously, at the time of the menopause. For some (uncertain number) years has had attacks of pain in epigastrium accompanied by nausea and vomiting, with some chilly sensations. In the past year these attacks have come more frequently (once in five weeks), but have been somewhat less severe than formerly. There is, at times, some sense of discomfort in the right side and down the leg. There has been no noticed disturbance of urination nor have there been any symptoms referable to the bowels.

Examination of the patient showed an elastic mass in the right side of the abdomen close below the liver. This mass was pushed downward by inspiration and could then be held down by the fingers thrust in above it so that it did not rise on expiration, but left a space between it and the liver.

The diagnosis of hydronephrosis was made and an operation advised. This was done on June 15, 1905. A lumbar incision was made along Israel's line and on reaching the kidney it was seen that the pelvis was greatly distended with the body of the kidney above it. A trocar drew over a pint of pale, clear urine. The sac was then incised and the opening into the ureter was found. No valvular condition was found and a urethral bougie, about No. 12 French size, was passed down to the bladder without encountering any resistance. This bougie was left *in situ*, a drainage tube was placed in the sac, alongside of it, and the opening was closed down about them with a continuous catgut suture. The kidney was then fastened to the fascia and to the lower rib with Pagenstecker sutures placed after Guyon's method. The patient made a good recovery, the bougie being removed from the ureter on the third day.

A comparative examination of the urines during convalescence was of some interest as indication of the functional activity of the hydronephrotic kidney. The urine drawn from the sac at operation showed a specific gravity of 1,006, no albumin and a rare granular cast. Two days later the specific gravity of the urine from the nephrotomy tube had risen to 1,012, while the urine from the bladder had specific gravity of 1,019. Three days later they were, from nephrotomy, 1,009; from bladder, 1,011. Four days later, from nephrotomy, 1,008; from bladder, 1,010. The quantity of urine from the hydronephrotic kidney was very nearly the same as from the other, showing that its functional activity was but little impaired.

The patient made a good recovery. One year later she wrote me that she had had since the operation four attacks of epigastric pain similar to those before. She said, however, that the tumor in the side had not reappeared in connection with these attacks. She expressed herself as feeling well and said that she had gained twenty pounds in weight during the year.

This patient was seen eighteen months after operation. She had at this time been more than six months free from any discomfort whatever. There was no sign of any enlargement of the kidney and she weighed thirty pounds more than at the time of operation.

THE SURGICAL TREATMENT OF RENAL TUBERCULOSIS.*

BY F. S. WATSON, M.D., BOSTON.

THE question of the surgical treatment of renal tuberculosis may be summarized thus:

1. *Nephrotomy* is of service as a palliative measure for the purpose of evacuating pus retained in the kidney and for the relief of pain and fever due to such pus retention when it occurs in cases in which nephrectomy is contra-indicated. Other than this, nephrotomy has no place in the surgical treatment of this condition.

2. *Nephrectomy, when performed under proper conditions,* is the *only* form of treatment of whatever kind by which we can hope to *cure* any important number of patients with this malady.

What are these proper conditions? They are as follows: (*a*) That the tuberculous infection does not involve both of the kidneys. (*b*) That there are no tuberculous lesions elsewhere in the body of such extent or involving such organs or structures as to render the performance of nephrectomy useless, because of their existence. (*c*) That the functional capability of the kidney to remain, after the performance of the nephrectomy, shall have been established beforehand.

When these conditions are present, nephrectomy will result in the *cure* of from 25% to 30% of the patients, and at an operative risk of from 7% to 10%.

This statement is made upon the strength of the series of more than 300 cases reported by Casper, Rafin, Albarran, Fenwick, Kümmel, Kuster, Kelley and Israel, in which about this percentage of cure was obtained, as shown by the fact that there was no evidence of tuberculous infection in the remaining kidneys of this proportion of the patients, examined at intervals of from one to ten years after operation.

How often *is* tuberculous infection confined to one of the two kidneys, and can we demonstrate with reasonable certainty its presence in one and its absence in the other of them?

Tuberculous infection of the kidney at the outset, is confined to one of the two organs in the large majority of female patients and in probably more than one half of the males.

The evidence upon which this assertion rests is as follows: In 37.6% of all the cases of renal tuberculosis found in a series of 13,000 *autopsies* made at Kiel in Germany, the infection was unilateral.

Surgeons having the widest experience in the treatment of this condition are substantially agreed in estimating the proportion in which the infection is confined to one of the two kidneys in from 60% to 80% of the patients examined early in the disease.

The means employed to determine the presence of the disease in one kidney and its absence in the other consist in testing the urine drawn from each kidney separately with ureteral catheters. These tests being to determine the presence of tubercle bacilli, of pus and blood, and by inoculations.

One other diagnostic evidence of the presence of the infection in the kidneys deserves special mention. I refer to the cystoscopic appearances of the orifice of the ureter of the infected kidney and of the part of the bladder immediately adjacent to it, which appearances are so characteristic to those surgeons who are thoroughly familiar with them — Hurry Fenwick, Willy Meyer and some others — that they are all that is needed for them in order to make an absolutely positive diagnosis of tuberculosis of the corresponding kidney.

A striking opportunity was offered to Mr. Fenwick for proving the correctness of this assertion and is published by him recently in the form of a clinical lecture which he delivered to students and medical men.

In the course of this lecture, he showed a woman who presented none of the usual evidences of the existence of renal tuberculosis; that is to say, she had no fever, loss of weight or strength, neither kidney was enlarged or tender. The urine contained no pus or renal elements, and repeated expert examinations failed to discover tubercle bacilli. Cystoscopic examination, however, revealed the conditions shown in the two figures which I pass around for your inspection, and which are taken from the article of Fenwick.

Upon these appearances solely and only, Fenwick not only positively asserted the existence of tuberculous infection of the corresponding kidney, but also stated that he was equally confident of the exact location and extent of the process in the kidney and ureter. He next demonstrated the cystoscopic appearances to a number of his audience, and then showed them a sketch of what he expected to find in the kidney upon its removal, which sketch he had made

* Read at a meeting of the Surgical Section of the Suffolk District Medical Society, Dec. 5, 1906.

several days before and which I will also pass around. Finally he removed the kidney without opening it, and upon doing so after the operation, his prediction with regard to the extent and location of the disease as shown by the sketch previously made by him, was verified in every respect.

Cystoscopic fallacies.—I may here appropriately speak a word of warning with respect to reports of the findings with the cystoscope made by those who have not had a very extensive and long experience of such examinations, for the fallacies and errors of cystoscopy are numerous, and no better testimony of the truth of this can be furnished than that of Fenwick himself. In the course of a chapter devoted to these fallacies and errors in his very interesting volume published in 1904, and entitled "Clinical Cystoscopy," Fenwick refers among other cases to three of his own, in which he opened the bladder for the purpose of removing tumors which he was positive of having seen with the cystoscope, but in none of which was the slightest trace of the tumor to be found.

Elsewhere in reporting the cystoscopic examinations in a series of 150 cases of tumors of the bladder, he remarks that he throws out the first fifty of these as useless because of their having been made at a time previous to that at which he had learned to interpret correctly what he saw or to see all that there was to be seen.

If one of the first if not the first cystoscopist of our time in point of skill and experience says this of his own examinations, it is evident that the results of such examinations made by those who are less experienced should be taken with some reserve.

With regard to the influence exercised upon our decision as to whether nephrectomy should or should not be done, by the presence of tuberculous lesions elsewhere in the body than in the kidneys, it will depend, as has been said, upon the structures involved by them and upon their extent. We should not, for example, do a nephrectomy upon a patient with widespread tubercular infection of the lung, nor again in a case in which the prostate and bladder were involved; but on the other hand nephrectomy is the best treatment for tuberculosis of the bladder in the case of women, when both these organs are involved in the process provided one kidney only is involved.

Moderate lesions of bone or lungs do not constitute contra-indications to the performance of nephrectomy.

With regard to establishing the functional sufficiency of the kidney that is to remain after nephrectomy, the means for so doing are too well known to need more than a passing reference. I will only say with regard to this part of the subject, that of the more recent tests by which functional capability of each kidney individually is ascertained, that of cryoscopy is, I believe, the most reliable, and is of real value. None of the ways of segregating the urine in the bladder thus far devised seem to me to be reliable or to compare in value with ureteral catheterization.

The value of the cryoscopic, phloridzin and other recently devised tests is well shown by the comparison of two series of 362 and 292 nephrectomies, in the former of which the tests of the functional capability of the other kidney were not applied, and in which the operative mortality was 35%, and the latter of which the tests were applied, and the operative mortality of which was 7.8%.

To recapitulate we may say this:

1. The kidneys are the first of the genito-urinary organs to be involved in the infection in a considerable proportion of male patients, and in a majority of females.

2. That the infection at the outset and for variable periods afterwards involves but one kidney.

3. That we are almost always capable of determining the presence of the infection in one kidney and its absence in the other, when such is the case.

4. That we can determine the functional capability of the other kidney in almost all cases.

5. That nephrectomy performed in cases in which the infection is confined to one of the kidneys, and in which the functional capability of the other one has been demonstrated, yields from 25% to 30% of cures.

6. That the operative mortality when nephrectomy is done under the proper conditions is about 8%.

It is true that this is not a very brilliant showing, but it becomes so in view of the fact that no other form of treatment gives more than 4% or so of cures, which I say upon the strength of an inquiry made by me personally a few years ago, in which I addressed questions with reference to this point to members of the American Climatological Association and some other general practitioners, and upon the fact that pathologists tell us that they rarely if ever see examples of spontaneous healing of tuberculous lesions in the kidney other than in the comparatively small number in which the process has been terminated by total destruction of the organ through extensive suppuration or occlusion of its ureter, which is not healing in the proper sense of the word.

Whether or no we shall discover an antitoxin which shall be as beneficent in cases of tuberculosis as that which has robbed diphtheria of its dangers, we do not know. Until such discovery has been made, we must turn to nephrectomy as the only means by which *cure* can be obtained in a considerable proportion of the patients. The measure of success obtained will depend upon the operation being done at an early period of the malady. One of the most important objects to be sought is therefore to make the physician realize the necessity of early diagnosis and early delivery of the patient to the surgeon for operation.

As it was with appendicitis and in a measure still is, as it is with cases of prostatic hypertrophy, of gallstones and cholecystitis, or renal calculus and other maladies, the tendency of many minds

in the profession is to temporize, and under the soothing narcotic belief and self-commendation of being conservative and safe, to treat the patients with palliative measures so long as they are not in immediate danger or are not actually suffering. In the presence of danger and of pain or at the final insistence of the patients themselves, they are at length brought to the surgeon at a time at which their malady has long since passed the stage at which surgical intervention could have saved or greatly benefited or cured them. Renal tuberculosis is another example of the cases which surgery cannot be expected to benefit in any important degree when it is in its later phases; it can be looked to to cure at least 20% of those who are brought at or near its inception, and will prolong life and spare suffering of a still larger proportion under those circumstances. Moreover, up to the present time it is the only treatment which can accomplish anything worth mentioning in the way of cure, and though its results are not brilliant, we may say that they are at least twenty times better than can be hoped for from any other course known to us.

I have purposely spoken with reference only to the essential features which concern the application of nephrotomy and nephrectomy in cases of renal tuberculosis, and of the latter operations, only in so far as its curative power is concerned, thinking that to enter into any other parts of this most interesting subject would lead me too far afield. Just one other point I should like to touch upon; it is with reference to what nephrectomy may do to benefit patients in the cases in which we do not look for cure because of the fact that both kidneys are already involved. Nephrectomy is not positively contra-indicated in all of these, and in some of the cases in which I have done the operation myself under these circumstances, and in some in which I have had the opportunity to see something of the results of the operation when done by others, I have found great temporary benefits result from it.

The indications for taking out one kidney when the other is slightly affected are when the seriously damaged kidney is the seat of extensive suppuration, is causing a great deal of pain and high temperature and when, for any reason, it is better to run the greater danger to life from the performance of a nephrectomy than to have a fistula to care for after doing a nephrotomy.

A FEW NOTES ON A FEW CASES OF RENAL TUBERCULOSIS.*

BY PAUL THORNDIKE, M.D., BOSTON.

YOUR secretary has asked me to present this evening a short paper on renal tuberculosis. It is an important subject, interesting alike to the physician and to the surgeon; to the former, because of the difficulties and importance of diagnosis in the early stages of the disease, and because of the gradually growing realization that some such early cases may be properly and successfully treated by non-surgical means; to the latter, because of the brilliant surgical results to be obtained in properly selected cases, and because of the dependence of these results upon such proper selection.

Up to 1880, although the disease was well-known, pathologically speaking, it was not included in the schedules of those diseases which are well recognized clinically as subject to accurate diagnosis. Since that date, its clinical picture, during the various stages of its development, has been made more familiar to us, its frequency of occurrence has been recognized more completely, and its accurate treatment has been a gradual evolution of the last ten or a dozen years.

It would not be possible, nor is it the writer's intention, this evening, to make a complete *résumé* of our present knowledge of this disease, but rather is it his desire to emphasize a few points which have arisen in his personal experience with such cases.

It has come to be known during the last few years that genito-urinary tuberculosis is a common disease, and that it occurs in the kidney, epididymis and in the Fallopian tubes with about equal frequency. It starts not uncommonly in the prostate but, so far as we know, less frequently there than in the kidney or epididymis. The disease is not usually primary in the genito-urinary system, but has a focus in some other part of the body, from which the infecting material is carried to the kidney or other genito-urinary starting point, in the blood stream; so that no matter how early in the progress of the renal or other lesion we are fortunate enough to make a diagnosis, we must always remember that we are not dealing with the only focus of disease which the body contains. There are, of course, exceptions to this, as to most other rules. In the writer's experience, a prostate, which was removed for other reasons, was found to be tuberculous, and upon the patient's death some time later, from other causes, this tuberculous prostate was found to have been the only tuberculous focus in the body, and was, therefore, the primary disease not only for the genito-urinary system but for the whole body. Renal tuberculosis, then, is a fairly common disease, and Bevan states,[1] in an admirably practical article recently published in the *Journal of the American Medical Association*, that "in surgical clinics, in which kidney fixations are limited to suitable cases, tuberculosis of the kidney usually furnishes the largest percentage of any single pathologic process, being more frequent than stone or tumor." Of the fifty operative renal cases in the writer's personal records, seven were tuberculous.

After the renal infection takes place, it has been found that, for a considerable period of time, in most cases the process is limited to this one kidney, and with the cystoscope and other modern aids it is possible in many cases to make

* Read at a meeting of the Surgical Section of the Suffolk District Medical Society, Dec. 5, 1906.

[1] Jour. Am. Med. Asso., Oct. 6, 1906.

the diagnosis before further extension of the disease has taken place.

We are dealing, then, with a disease which, although not usually primary for the whole body in the kidney, has its most important focus of infection in that organ, and is limited to that organ long enough after its inception to make a diagnosis, with the means at present at our command, possible during this period. These facts seem to be proven to the universal satisfaction of students of this disease, for although autopsy records show an enormous percentage (certainly over 50%) of bilateral renal tuberculosis, clinical records, from modern surgical clinics, have shown during the last ten years a very small percentage (none over 15%) of bilateral cases at the time the diagnosis was made.

From these facts, then, we should infer that with a diagnosis made while the disease is still unilateral, brilliantly successful results should follow removal of the infected kidney, and such has already proved to be the case.

Primary nephrectomy in proper hands for this disease seldom proves fatal, and the after-result at this stage of the development of the disease is all that may be desired. What cases should be so treated? In reading reports of some cases where a diagnosis has been made very early in the progress of the disease, made perhaps by the lucky finding of the few bacilli in the urine from one kidney or the other, in a patient where the symptoms of irritation, etc., were all referred to the bladder and where there was nothing to suggest renal involvement until the ureters were catheterized, it is perhaps fair to speculate as to whether the brilliant cures which followed nephrectomy might not be equally brilliant following a proper hygienic and climatic treatment in similar cases. In this connection, the writer has been interested to note a statement of Dr. Edgar Garceau's in a paper recently published,[2] which is as follows: "Incipient tuberculosis of the kidney is best treated by a change of climate, but, unfortunately, incipient renal tuberculosis is rarely diagnosed, and it is only when the disease is well along and has invaded the rest of the urinary tract that the diagnosis is usually made. If it has not gotten too much of a start, and this may be fairly accurately determined by the amount of pus in the ureteral urine, it is worth while to try the effect of climate." Now it may be true that such early diagnoses are seldom made, but it is getting less true all the time, and it is up to the surgeon to have an opinion on this question and to decide what is to be done with these patients when such an early diagnosis is possible.

Every year the profession proves itself wider awake to the frequent occurrence of this disease, and every year more and more early and accurate diagnoses are made. In the last few weeks, the writer has seen in consultation three cases,—all referred to him as possible cases of renal tuberculosis by physicians in general practice. The fact that only one of the three cases proved to be of tuberculous origin does not alter the fact of the physician's recognition of the possibilities, nor does it undervalue his promptness of action. Of seven personal cases of the writer's, four were operated for the removal of the kidney; all of these recovered and did well. Of the three other cases, one was never operated because of her own refusal, and the other two were deliberately treated by change of climate and hygiene after an early diagnosis was made. One of these patients is a young girl who (two years after the diagnosis was made) is now in good health. Her physician writes that, although the urine still shows the same evidence of disease as formerly, he cannot see that she has progressed beyond the point reached two years ago. The other is a clergyman who writes from the mountains of California that he has forgotten he ever had anything the matter with him, and that he is told his urine no longer shows the bacilli of tuberculosis. In one of these cases, operation had been vigorously insisted upon by other advisers.

The point is this: while it is true that nephrectomy results are brilliant and that the bulk of the patients presented to us come at a stage of the disease where few surgeons would hesitate to operate, the incipient case, with little or no pus in the urine, is becoming more and more quickly suspected by the physician and, therefore, more frequently recognized by the surgeon. In such cases, frequent or infrequent though they be in the experience of any one of us, hygiene and climate should have a chance before the surgeon removes so important an organ.

Now to consider the later cases. Nephrectomy is always the operation of choice. For years many pus kidneys have been approached through the loin and drained. Many of these have, doubtless, been tuberculous kidneys. All surgeons are familiar with the stubborn persistence of these loin sinuses resulting from nephrotomy for pus kidney, from stone or some other cause. All surgeons dread the care of them just as they dread the care of the empyema sinus, and patients may well dread the possession of them. The writer never does a nephrotomy for pus kidney without wishing that nephrectomy were the possibility instead, and as the years go by and the number of his secondary nephrectomies accumulates, he is more and more prone to make the nephrectomy a primary procedure. In these tuberculous cases he believes that nephrotomy is never indicated, except for the relief of pain and the evacuation of pus in far advanced cases which cannot be subjected to the more radical operation. He also believes that nephrectomy should be done in all cases where the patient is strong enough to bear the operation, even when portions of diseased tissue are left behind. We all realize that even in comparatively early operations, where the local focus is removed with apparent completeness, we are still leaving behind another (the primary) focus elsewhere in the body. We all realize when we cut open and clean up a tuberculous joint that we are not removing all of the disease, and yet we

[2] Jour. Am. Med. Asso., Nov. 3, 1906.

often get a good stiff joint and a complete healing. It has been the writer's experience to remove tuberculous testes, knowing that he was leaving behind infected vasa and often infected prostates, and then to see the remnants of the disease die out, leaving the patients apparently free from further trouble. It has been his experience to see tuberculous ulcers in the bladder heal themselves after the infecting kidney was removed, and to see, in one case at least, the remains of an infected ureter stump shrivel down and heal itself after a nephrectomy which removed so much of the diseased tissues as the patient's condition would stand. Therefore he believes that, while every emphasis should be placed upon the necessity for completeness and thoroughness of the operative technique, the removal of ureter as well as the kidney, whenever possible, and the absolute necessity for leaving behind no part of the disease which is safely removable, the surgeon should not be discouraged, nor should he hesitate to operate, because he knows or perhaps learns, after his incision of approach is made, that the disease has passed the point which limits its complete removal.

Now let us consider for a moment the question of the other kidney. It has already been stated that autopsy statistics show in a large percentage (over 50%) of renal cases, both organs involved, while clinical statistics in these later years show the diagnosis made at the time when only one kidney was involved, less than 15% of the patients presenting themselves having the infection in both organs.

Bevan, in his recent article already mentioned, notes figures as follows: 12,732 autopsies at Kiel showed that of the cases of renal tuberculosis 62.3% were bilateral and 37.6% unilateral; or, roughly speaking, two out of three cases had involvement of both kidneys.

On the other hand, the clinical statistics show as follows:

Kroenlein showed 92% with only one kidney involved; 8% where both organs were involved; Israel showed only 8.3% bilateral involvement; Facklam showed only 9% bilateral involvement; Kümmel showed only 12% bilateral involvement.

In these bilateral cases, however large or small their number, the question at once arises, Shall we remove a badly diseased kidney in the face of the knowledge that the other kidney is beginning to be involved? It is, of course, unwise to make sweeping generalizations concerning questions not subject to proof, but one may always be permitted an opinion. The writer's opinion is that any large tuberculous focus which is so readily removed as is a kidney should be at once so removed in every instance where the patient's condition will stand the removal, and where it has been possible to get a fairly accurate knowledge of the [working capacity] of the other organ. With a full recognition of the many difficulties attending the use of ureter catheterization, especially in the male, with a realization of the many limitations and sources of inaccuracy attending the employment of cryoscopy, the phloridzin and other similar tests in ascertaining the relative work-capacity of the two organs, the writer believes that in most cases it is possible to find out not only which kidney is the chief offender, for usually by the time the second kidney is involved at all the first is very evidently so involved, but whether the other kidney is capable of doing the work of both with a fair degree of success; and he earnestly believes that the simple fact of the known involvement of the second kidney does not always remove the necessity for and the propriety of a nephrectomy upon the organ chiefly involved. He is strengthened in this belief not only by the fact that many such nephrectomies have been done in the past, often without the knowledge of the operators, but also that his own experience is constantly showing him, with more and more clearness and insistence, the fact that the removal of a large part of the tuberculous infection is often the turning point in the progress of the disease and enables the patient to handle the remaining portion in a way that would have been otherwise quite impossible.

To sum up, then, the writer believes that in the comparatively small but constantly increasing number of patients where the diagnosis can be made before much destruction of kidney tissue or involvement of other organs has taken place, hygiene and climate should have a chance before the kidney is removed. He believes that this treatment will often do away with the necessity for an operation. For the more numerous later cases nephrectomy is always the operation of choice, and should be done in every instance, if the patient can stand it and if he has another kidney capable of doing a fair amount of work, whether the disease has passed beyond the limits of the organ to be removed or not, and whether the other kidney be involved or not.

EXPERIMENTAL STUDIES IN ARTERIOSCLEROSIS.*

BY OSKAR KLOTZ, M.D.,

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Our conception of the pathology of arteriosclerosis has recently been so altered, that much confusion exists at the present date, as to what form or forms of arterial disease should be considered under this term. There were and are still many who would limit the term to a single kind of lesion, while others again are more liberal, and use this appellation to include the great mass of arterial diseases which eventually lead to a thickening of the vessel walls. The author of the term leaned towards using the word "arteriosclerosis" for all conditions of hardening of the arteries, and with this meaning the old anatomists expressed themselves, reserving, however, the term "atheroma" for another distinct lesion. However, Virchow's description of endarteritis chronica deformans, as the commonest type of

* Read before the Medical Association of the Greater City of New York, Jan. 21, 1907.

arteriosclerosis, has led to the adoption of these expressions interchangeably, and has found the most favor recently. In my own studies I have given the wider use of the word, and include under arteriosclerosis, as was formerly the case, all hardening of the arterial coats. This, you will agree, is more in accord with the findings of the clinicians, for, *intra vitam*, they can in no wise differentiate the various histological forms of arteriosclerosis. It is necessary to bear in mind this wide definition I have given to the term, for otherwise it may be held up to me that arteriosclerotic lesions were not obtained in the experimental work.

One must also not lose sight of the diverse functions which the vascular system has to perform, and how the manifold work of the arteries is at the bottom of their histological structure. The arteries of the uterus, which are well supported by the muscle tissue of the organ, are rich in muscle fibers, while the quantity of elastic fibers falls much in the background. These uterine arteries require this abundant muscular development for the periodic congestion at menstruation and pregnancy. On the other hand, the splenic arteries which within the organ have a poor supporting framework must rely entirely on their own strength to withstand the blood pressure. This extra strength of the arteries is obtained in a well developed adventitia, strengthened by elastic fibers.

The intima, too, of the different arteries varies in its constituents. Thus the arteries of the first order possess a muscular layer in the intima which is not present in the smaller arteries. Certain diseases therefore can and do occur in the intima of these larger vessels which can in no way be developed in their branches.

The experimental production of arteriosclerosis in animals is of fairly recent origin. The first experiments undertaken were by the direct injury, as crushing of an artery. In this way the experimenters had hoped to bring about sufficient change in the vessel walls to lead to aneurism. They were disappointed in this, but instead of an aneurism they found that certain local inflammatory changes with endothelial proliferation were produced. It has since been shown in all cases where an artery is disturbed in its natural bed, thereby affecting the vaso vasorum, that an inflammatory reaction is the result.

From a study of these inflammatory processes two important facts were noted. Firstly, that an inflammatory reaction in the media is evidenced by a leucocytic infiltration about the vasa vasorum and in the lymphatic channels; and secondly, that a lesion of the media of inflammatory nature may lead to a chronic proliferation in the intima. This intimal proliferation is the result of endothelial and connective tissue overgrowth and is similar to the disease which Virchow called "endarteritis chronica deformans" in man, while the medial inflammation is like Koester's "mesarteritis." This mesarteritis passes gradually from the acute inflammatory stage into the process of chronic healing in which fibrous tissue is laid down in the middle coat of the artery. In man the most severe form of this disease is met with in syphilitic arteritis, but no doubt other infections can lead to the same results.

Since the above mechanical experiments were made, several other ways were found to bring about the same results. The chronic endarteritis has been brought about by the intravenous inoculation of bacteria of low virulence. Thus I have been successful in producing an endarteritis chronica deformans in the arch of the aorta and sometimes in the abdominal portion by the injection of old laboratory stocks of the streptococcus or B. typhosus. A true inflammation of the media (a mesarteritis) I have not succeeded in obtaining except when an injury had been induced close to the vessel itself. In this case the inflammation of the surrounding tissue spread into the arterial wall.

The experimental endarteritis chronica deformans has histological characters quite similar to that in the human arteries. The lesion is composed of a heaping up, layer by layer, of the endothelial cells, while the connective tissue underneath the endothelium is also undergoing a proliferation. The result is that a white, pearly plaque is produced, under which degenerative changes of a fatty character may develop in the deeper part of the intima.

Whether these pearly plaques in the human or experimental arteriosclerosis are composed wholly of endothelial cells, or of connective tissue, or both, is quite immaterial at present. The result is the same, the production of a nodular hyaline mass of tissue on the surface of the intima. Such a thickening of the intima has a disastrous effect on the tissue just underneath it. The intima and the inner third of the media derive their nourishment from the lumen of the vessel, and the production of a firm mass of tissue at one point in the intima cuts off the supply of nourishment to the cells underneath it. From this there follows the fatty change in the deep layers of the intima and the inner portion of the media, a condition which is so often seen in the aorta.

The experimental lesions which have of late received the most attention are of a different nature. I have just pointed out that the endarteritis chronica deformans is essentially of a proliferative character, and that degenerative processes, if they occur at all, are secondary to this. We have, however, on the other hand, been able to produce pathological conditions which from the first are degenerative in nature. By the use of adrenalin, digitalin, nicotine and barium chloride, it has been shown that *the muscle cells in the middle zone of the media are primarily attacked*, and according to the intensity of the intoxication of these drugs, the cells either undergo a fatty degeneration or complete destruction. Along with the death of the muscle cells, the elastic fibers in the media are also affected and, like the former, they either become fatty, or with more severe intoxication, undergo necrosis.

However, in each instance the muscle fibers are primarily affected. These lesions, it is obvious, have destroyed the most important tissues in the artery, and have weakened the vessel wall very considerably. Aneurisms are commonly to be found at the sites of medial change while little if any intimal compensation occurs. Thoma's dictum, therefore, that intimal compensatory hypertrophy follows medial weakening is not universally true. This type of arterial disease, in which the media is first destroyed, is spoken of as "Moenckeberg's arteriosclerosis."

Not alone was the medial degeneration with calcification produced by means of drugs, but I have also obtained it by the inoculation of the diphtheria toxin. This is important in demonstrating that the effects of diphtheria are not confined to nervous tissue and heart muscle, but that the muscle elements of the vascular system are also attacked. It may be that the intoxication in cases of diphtheria is an important agent in bringing about Moenckeberg's arteriosclerosis, such as is seen in the radials and other peripheral vessels.

This latter form of medial degeneration with aneurismal pouchings has also its analogy in the peripheral arteriosclerosis in man. The greater majority of the cases of arteriosclerosis which are diagnosed from the condition of the radial arteries are of this type. The beadings so often noted in the radials of old people are the small pouchings in the vessel wall that have become calcified.

It is therefore evident that if the term arteriosclerosis is to be retained for the use of the clinician that this form of arterial disease, which is most commonly seen at the bedside, must be included under it.

The calcified plaques of the aorta or the calcareous beadings in the radials and other peripheral vessels are in each case secondary to a previous fatty change of the tissues. Experimentally these deposits of lime have been produced in connection with the medial destruction, when both muscle and elastic fibers become fatty. It is interesting to trace the course of the muscle tissue through the process of fatty degeneration with a subsequent death of the cells. The fine fat droplets within the cells are converted into the fatty acids by the lipase of the blood and serum, following which the salts of lime form a stable compound with the fatty acid in the form of lime soaps. These fatty acids and soap compounds are readily demonstrable by special staining. From the calcareous soaps the phosphate and carbonate of lime become deposited later.

Thus, up to the present, we have at our command the production of three types of arteriosclerosis, namely, (1) endarteritis chronica deformans, (2) mesarteritis, (3) Moenckeberg's type of arteriosclerosis. Each of these experimentally produced arterial diseases follows the same course and has the same ultimate result as in man. However, as the lesions are produced in healthy animals, which have power to compensate the effect of extreme arteriosclerosis, fewer symptoms are to be noted. The heart rapidly becomes hypertrophied and is able to carry the new load with comparative ease.

VISCERAL ARTERIOSCLEROSIS.*

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PHYSIOLOGY has taught us that all the tissues of the body are dependent, either directly or indirectly, on their blood supply. From our pathological investigations we recognize that when the amount or character of this nutriment is decreased the tissues begin to degenerate and become diseased then a decrease in function results. When this takes place in a single organ, or in a group of organs, the demands of the other viscera being at their normal, symptoms of deficiency on the part of the diseased viscus become all the more prominent on account of the lack of correlation. If the decrease in nourishment, on the other hand, be a general one, as normally present in senility, none or few visceral symptoms appear, since the functions and requirements of the various diseased organs are equally diminished and the balance of relative visceral activity is not disturbed. Furthermore, with the general body requirements at the normal, a crippled system is regularly called upon to do the work of an otherwise natural body, and this normal and constant demand on the diseased viscera tends more and more in many cases to encompass progressive pathological changes.

Partly on account of this general law, visceral arteriosclerosis is clinically of very much more importance than the disseminated disease, at least in the body of an active growing or adult subject, and, as a rule, the symptoms of localized disease are more striking. For very much the same reason cases of general arteriosclerosis where the larger vessels, as the aorta, the femorals, axillaries and other general trunks, are mostly affected, present few or no general or specific symptoms, except in the presence of active disease, as an acute aorteritis. This is due to the fact that the distribution of the nutritive fluid does not depend on the action of these large trunk walls, for their lumen is generally constant. This is so because their media or muscle coat is slight and the vessels are constructed for the most part to withstand pressure. Their condition does not act materially on the blood pressure and even when their lumen may be considerably encroached upon, the distribution of the blood is but slightly unbalanced, except in most unusual instances. As you all know, even when aneurisms of the large trunks are present, little or no disturbance of the nutritive function may appear and changes in general blood pressure are usually slight. Quite a contrary condition of affairs results when the trunks supplying the important viscera are involved.

* Read before the Medical Association of the Greater City of New York, Jan. 21, 1907.

The visceral arteries are those of the "medium" class as classified by the histologists, they are the trunks which have thick and well developed muscle coats. This heavy media is physiologically necessary since the blood supply to these organs must alternately be increased by the relaxation of the muscle and decreased during the physiological resting stage by the local contraction of this coat. As a result of this delicately balanced function, even relatively slight changes in any of the walls of these very active vessels hinder or limit the possibilities in these directions. Thus an alteration in the intima, even if it do not, as in most cases, also extend to the media coat, causes an appreciable alteration in the caliber of the vessel when it contracts or expands. Most important of all, when the media or muscle coat becomes even slightly diseased, either by degenerative muscular alterations, by encroachments of interstitial hyperplasia or by true inflammatory exudate, the physiological relaxation and contraction, the entire control of nutritive vascular supply is interfered with and the organ may, as a result, become chronically congested, or perhaps habitually anemic. In either case the viscus becomes permanently damaged and is no longer able to properly maintain its functions and its physiological balance in the interreactions of the body. A disturbance of this equilibrium leads first to secondary changes in the immediately dependent organ and perhaps finally to lesions of the general viscera.

Furthermore, disease of the arterial walls in vessels of this class tends to alterations in the general blood pressure, probably in an attempt on the part of the body by an increase in the pressure to balance the blood distribution or to furnish a normal requisite amount of blood for the functional activity of the diseased organ, especially if it be of great vital importance as is the case with the heart or kidney. Elevation of the blood pressure, due apparently to local arterial disease, is particularly well illustrated in cases of arteriosclerotic or small, contracted kidney where the blood pressure is almost uniformly elevated, a fact for the full recognition of which we are chiefly indebted to Dr. Janeway.

As to the relative rate of occurrence in visceral arteriosclerosis analysis of my series of 400 cases of arteriosclerosis showed 368 in which the visceral arteries were mostly or exclusively involved.[1] This rate of occurrence in itself demonstrates the importance of the consideration of the disease of these vessels. Analysis as to the relative distribution showed the coronary artery diseased in 270 of the 368 cases; the cerebral vessels were involved in 107 instances, the renal vessels in 81 cases, the pancreatic in 74, the hepatic in 43, the splenic in 35 and the spinal vessels in 20 cases, the pulmonary in 16, the celiac and its visceral branches in 19 and the mesenterics in 4. I urge these statistics as of special value to New York physicians, since they have been compiled exclusively from cases residing in this city, therefore subjected to its general and local etiological conditions, also to the strain and wear of New York professional, business and laboring life.

Dr. Fisher, who was to have presented one of the aspects of visceral arteriosclerosis (as it occurs in connection with the nervous system), has unfortunately been prevented from favoring us to-night, but in general it may be stated that the symptoms of arteriosclerosis of any organ are practically those ascribed to the brain and cord. Thus we have temporary aphasia of the pancreas, not manifested by loss of speech, of course, but by loss of the pancreatic equivalent for speech, namely the pancreatic secretion. We have intermittent claudittation of the renal vessels; and those of you who follow your kidney cases carefully, especially as to the relative amount of renal excretion, are, I am sure, able to fully corroborate this statement. Nearly every other symptom can also be likewise compared as to character and causation.

Very briefly the most constant symptoms of visceral arteriosclerosis in any organ are, (*a*) depressed function, often spasmodic, but mostly evident when studied for long periods, (*b*) pain, also usually spasmodic and always of the anginal character, localized in the distribution affected and exemplified by that seen in angina pectoris, erythromelalgia and Reynaud's disease, (*c*) also spasmodic elevation of blood pressure is an important but inconstant symptom.

Our diagnosis must as yet rely chiefly on the appearance of these symptoms coupled with a requisite history of etiological factors and the usual method of diagnosis of general arteriosclerosis (largely by the inspection and palpation of the superficial arteries which are, as I have formerly stated, most unreliable in visceral arteriosclerosis). Thus in my 400 cases the superficial vessels were involved but 154 times, and in 4 of these instances changes were not present to any appreciable degree in the internal visceral trunks, but were found only in the superficial vessels. Thus peripheral and ofttimes quite general arteriosclerosis may exist without involvement of the nutritive vessels of the important organs.

I am intensely interested in the treatment of visceral arteriosclerosis and, notwithstanding the very short time allotted to my paper, I cannot refrain from mentioning some of the methods which have proven most efficient in my hands.

First, we must mention those measures which tend to eliminate the productive factors; this primarily involves in most cases the relief of the diseased viscus from overfunctional activity; if the brain, the patient must be relieved from worry and stress, if the pancreas or liver, from excessive digestive demands, and if the kidney vessels are chiefly diseased elimination by other routes must be substituted, and the products for elimination simplified by the correction of diet or relief of metabolic disorders. In all instances general hygienic measures are to be insisted upon.

Diminution of the physiological or pathological demands on the diseased organ may be occa-

[1] Transactions New York Academy of Medicine, Feb. 15, 1906; Amer. Jour. Med. Sc., May, 1906.

sionally encompassed by the proper exhibition of drugs, or by local mechano-therapy. Thus, in coronary arteriosclerosis the use of the various vaso-dilators or of the warm or Co_2 bath may give, as you all know, gratifying results.

General treatment is attended by benefit in nearly all instances. Thus the general lowering of the blood pressure when it is habitually high, either by local or general means, is often necessary. Potassium iodide and perhaps other forms of iodide as well, employed as general drugs, serve to prevent extension of the disease, as definitely shown by recent experiments; and also, in at least a certain class of cases, it tends to facilitate absorption of inflammatory and degenerative products in the vessel walls already diseased. This action of the iodides no doubt takes place quite independently of syphilitic disease, in which instance, of course, we all recognize the utility of the drug and that of its companion, mercury.

In conclusion, permit me to especially urge upon you the following points: First, the great frequency of visceral arteriosclerosis and its importance, particularly in internal medicine. Second, the diagnoses, in many cases partly by exclusion, partly by its direct signs and symptoms and partly by the results attending treatment. Third, treatment which is attended with great benefit in a very considerable number of cases, but which must first be based on a close study of the special etiology, on a thorough appreciation of the physiology of the diseased organs and of the special idiosyncrasies of each instance and, finally, on a correct diagnosis.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D.

THE INNERVATION OF THE UTERUS.

The uterus up to the last few decades has been described in the textbooks as having no nerves in its tissues, notwithstanding the fact that it is the seat of much pain both in the pregnant and non-pregnant condition, it is sensitive to intra-uterine instrumentation, and, moreover, the causative agent of the condition known as hyperemesis gravidarum. Nerves had not been demonstrated in the muscles or mucosa.

That nerve ganglia and nerve trunks existed in the tissues immediately surrounding the uterus had long been known. Their exact description, more particularly the description of the cervical ganglion, was left to Ph. Jung to demonstrate.[1] He published in 1905 an article on the innervation of the female genital organs previously noted in these columns.[2]

His plates show a cervical ganglion, half moon shaped, situated in the connective tissue of the parametrium of a full term infant. It lies at about the level of the vaginal fornix, laterally at a considerable distance from the uterus, not far from the ureter. There are many nerves radiating from this ganglion in all directions. Jung thinks that the ganglion represents a conglomeration of all the branches of the genital nerves and is not a true plexus. Great masses of ganglion cells and connective tissue make up its substance. He also demonstrated what he considered to be nerve ganglia in the posterior wall of the uterus of a newborn child. Later investigations have not confirmed him in this interpretation of what he found, however.

Alf. Labhardt[3] has conducted investigations on the uteri of animals and women in the Woman's Hospital of the city of Basel and the Physiological Laboratory of the University of Basel, embodying his results in an exhaustive article of seventy-six pages, five colored figures and one hundred and thirty references to the literature.

He set himself the task of answering the following questions: "How do the nerve fibers run in the uterine tissue?"

"How do the fibers end in the myometrium and how in the mucous membrane?"

"Are there ganglion cells in the substance of the uterus?"

Before discussing and answering these questions he reviews the literature as to the origin and the course of the nerves reaching the uterus, concluding with the following statement:

"The uterus receives sympathetic nerve fibers as well as those which arise from the cerebro-spinal system. The sympathetic fibers, to which branches are given by the solar ganglion, run downward in the aortic plexus. In its downward course the aortic plexus receives auxiliary branches from the lumbar ganglion of the sympathetic.

"At the point of bifurcation of the aorta, the aortic plexus divides and becomes the two hypogastric plexuses, which surround the rectum and give off branches to it as well as to the other organs of the true pelvis. These hypogastric plexuses receive in turn auxiliary branches from the sacral ganglia of the sympathetic. As concerns the uterus, single branches run direct on each side from the hypogastric plexuses to the uterus, but other branches — and these make the majority — lead to the cervical ganglia, which lie to the right and left between the layers of the broad ligaments midway of the length of the cervix uteri.

"Branches from the spinal nerves enter this ganglion, fibers from the third sacral nerve and also the second and fourth (infrequently from the two latter together). Most of the fibers destined for the uterus pass through the cervical ganglion and have a direct connection with the ganglion cells.

"Another ganglion situated near the uterine insertion of the true ovarian ligament is composed of an anastomosis of the uterine and spermatic nerves.

[1] Monats. für Geburts. und Gynäkol. Bd. xxi, 1.
[2] Boston Medical and Surgical Journal, vol. cliii, 449.
[3] Das Verhalten der Nerven in der Substanz des Uterus, Arch. für Gynäkol., Bd. lxxx, heft 1, 135.

"Fibers from the cervical ganglion enter the edges of the uterus, follow along them and give off branches to the substance of the uterus that run towards the median line."

The author reviews at great length the literature of the situation of the nerves in the tissues of the uterus, and then proceeds to a description of his technique in staining nerve tissue and his experiments on the uteri of animals and women, concluding with remarks on the innervation of the uterus from a physiological point of view.

The final conclusions are as follows:

1. (*a*) An extended nervous system is present in the uterus of the rabbit. The larger trunks run between the two chief muscle layers and give off inter-fascicular branches, which, in turn, give off intra-fascicular branches. The large trunks contain, besides numerous colorless fibers, a small number of fibers containing myelin that have already lost their medullary layer while within the larger trunk.

(*b*) A rich nervous system is present also in the human uterus. The larger trunks run within the middle muscular layer and give off from this situation branches which lie inter-fasciculary and from which intra-fascicular smaller branches are given. The larger trunks contain besides numerous colorless fibers, some fibers of double outline, which have lost their medullary layers while still within the larger nerve trunk.

2. The manner of ending of the nerve in the musculature, and in the mucous membrane, either in rabbits or in human specimens, has not been determined accurately by the methods now in use (special Golgi and methylene blue stains).

3. Ganglion cells have not been discovered in the uterus, either in the human specimen or in rabbits.

4. The view that there is an intramural system of ganglia is absolutely without foundation. Contractions of the uterus follow,

(*a*) Through the nerves, by irritation of the cervical ganglion or by a reflex irritation, or

(*b*) Through the muscle by direct irritation of the musculature.

Jung claimed [4] that uterine contractions during labor are caused by pressure on a succession of the nerve ganglia distributed through the genital organs.

Franz [5] and Kurdinowski [6] have made extensive studies of the physiology of the uterus, showing the effects of cold and heat and asphyxia and anemia on uterine contractions.

O. Schaeffer [7] holds that the varying tonicity of the uterus is due to vasomotor as well as to purely motor influences. It is a co-ordinate function. Every dilating stimulus emanating from the internal os has a regular, dilating influence, even on the non-pregnant uterus. The fundus balloons out regularly on all sides and stretches upward. The grating transmitted to the operator's hand during curetting is due to the formation of ledges in the wall of the uterine cavity by the strongly contracting muscularis of the internal layers. The uterus of a nullipara is not capable of a high degree of relaxation. Affections of the adnexa causing metrorrhagia induce a predisposition to a lively alternating tonus, similar to that of pregnancy, and from this up to paralysis.

Catharine van Tussenbroek, of Amsterdam,[8] thinks that the stimulus causing uterine contractions may be central in the uterus or of peripheral origin. Dilatation with laminaria tents predisposes to uterine relaxation, therefore she advocates anesthesia and rapid dilatation with steel dilators.

The explanation of the physiological processes of the uterus with our present knowledge of the innervation is by no means an easy matter. The absence of ganglion cells in the tissues is a serious loss. An analogy has been drawn between the heart and bowel with their intramural ganglion systems, and the uterus. There is a difference in the fact that the uterus becomes enormously distended during pregnancy and the distention requires a long time. If there were a ganglionic system in the wall of the uterus this would be destroyed and its parts separated by the enlargement of the organ, and the irritation of the ganglia at such a time would result in uterine contractions with the result of expelling the uterine contents.

In the case of the heart and the bowel, where contractions follow each other relatively rapidly, one can understand how through the stretching the stimulus for a new contraction is given, and thus is explained the conception of an intramural ganglion system. In the case of the uterus it is otherwise; nature has provided that during the stretching of the organ up to a certain definite point, the stimulating ganglia shall remain undisturbed, therefore these cells are placed outside the uterine walls but in the immediate neighborhood, in the cervical ganglion. It is to be noted that during the expansion of the uterus in pregnancy, no pain is experienced by the patient under normal conditions, that is, if there are no adhesions of the uterus to surrounding structures, whereas during delivery when the nerve ganglia of the pelvis are subjected to trauma by the passage of the child, pain is a prominent symptom.

Stimuli come to the uterus from outside, as by irrigating or curetting the interior and thus irritating the uterine muscles, or through the nervous system, as for instance from the breasts, in the classic example of uterine contractions caused by the child's nursing. That the uterus is not entirely under the influence of the nervous system has been shown by Kurdinowski [9] who caused contractions in uteri two days after they had been removed from the body. The contractions caused by drugs such as ergotin are probably due to the direct action of the drug in the blood current on the uterine muscle, an example of

[4] *Loc. cit.*
[5] Zeitschr. für Geburts. und Gyn., Bd. 53, 1904.
[6] Arch. für Gynäkol., Bd. 76, 1905.
[7] Kritik der Wehen erregenden Methoden und über die kunstliche Muttersmundserweiterung. Liepzig, 1906. Zentralbl. für Gyn., no. 40, 1906.
[8] Näheres zum Tonusverlust der Gebärmutter bei der Curettage. Zentralbl. für Gynäkol., 1906, no. 2, 47.
[9] Arch. für Gynäkol., Bd. 76, 1905.

what Kurdinowski calls "myogenous contractions."

Much work remains to be done, not only in tracing the ramifications of the minute nerve fibers in the uterine muscle and mucosa, but in physiological experiments, to determine the factors which govern uterine contraction and relaxation.

Reports of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Meeting Held at the New York Academy of Medicine, Jan. 21, 1907.

The President, Dr. T. E. Satterthwaite, in the chair.

Arteriosclerosis was the general subject of the evening. The first paper was by Dr. Oskar Klotz, of Montreal, on

EXPERIMENTAL STUDIES IN ARTERIOSCLEROSIS.

Dr. Louis F. Bishop read a paper on

SOME DIAGNOSTIC FEATURES OF ARTERIOSCLEROSIS IN CLINICAL MEDICINE.

The only point that interested us in diagnosis was, he said, that in certain instances arteriosclerosis causes a sufficient thickening and irregularity of the blood vessels to be recognized by direct examination. The importance of the condition, however, must be judged by the symptoms which accompany it. In itself a moderate degree of arteriosclerosis is of no importance to the individual. It is only important when considered in relation to its causes and the possibility that their continuance may bring about such functional and structural vascular degeneration as to endanger the functions of important structures. Hypertrophy of the heart is Nature's effort to strengthen an organ to meet a strain. In the same way arteriosclerosis may be the result of a small cell infiltration designed to strengthen arteries in the presence of undue pressure from without. He believed that high blood pressure was not the cause of arteriosclerosis, but rather the result of a cause which usually also resulted in high blood pressure, but which might induce sclerosis without the accompaniment of blood pressure.

For the proper circulation of the blood the organs of the vascular system are maintained in a uniform state of tension, which is altered in one place or another to vary the blood supply to meet the demands of the body. This general tonicity of the vessels is maintained by a constantly acting influence from the central nervous system; but when for any reason this central influence is in excess we have hypertonicity of the vessels, and this immediately complicates the circulation by demanding a higher blood pressure and tending to cause hypertrophy of the heart. Under such circumstances arteriosclerosis develops, either as a conservative measure analogous to the cardiac hypertrophy or, perhaps, also to some degree as a trophic change of central origin. The symptoms of arteriosclerosis are, therefore, the symptoms of hypertonia vasorum, with its irregularity of vascular control, except in the case of very gross lesions, where there may be purely mechanical results, due to the blocking or rupture of a blood vessel. This conception of arteriosclerosis seemed to the speaker to explain the local and general symptoms better than any theory which has regard only to the pathological anatomy. Clinically, arteriosclerosis may be suspected where there is high arterial tension with cardiac hypertrophy not due to valvular lesions; where there are symptoms of circulatory irregularity in the central nervous system, such as dizziness, attacks of syncope, and changes in disposition in old people; and where there are irregularities of blood pressure and albuminuria with low specific gravity. Our judgment as to its existence to an extent to be of importance must be founded upon the whole picture of the case, rather than upon a single objective or subjective manifestation. Mental strain is undoubtedly a very important etiological factor, acting by an exaggeration of the tone-maintaining nervous function, and when there is a history of prolonged nervous strain the symptoms enumerated become of greater significance.

The influence of the nervous system in originating and maintaining a vicious tension in the circulation is second in importance only to the results of degenerative kidney disease, and of late years it would appear that the cases of nervous origin are becoming constantly more frequent. Dr. Bishop went on to say that he had come lately to use the term "chronic vascular overtone." Thus he would explain upon physiological grounds, rather than those of pathological anatomy, the vicious contraction of the blood vessels which is the basis of so many cases of cardiac disease and eventually of destructive lesions of the kidneys and central nervous system. The recognition of this class of cases, which would seem to be well-named cases of vascular overtone, he thought would clear up the diagnosis in cases which certainly were not primarily disease of the kidneys, and point very distinctly to remedial measures of such a character as to modify the physiology of the nervous system. Thus, clinical experience shows that the subjects of hypertonia vasorum improve when mental activity is reduced and muscular activity increased. Also that they improve on a diet restricted in quantity and restricted as to the amount of meat and sugar ingested; and also that many patients are more comfortable when the hemoglobin of the blood is below, rather than above, the average found in healthy individuals. Since he has come to regard these changes as simply an abnormal exaggeration of a naturally existing force he has been much more hopeful as to the successful care of the condition and of its practical cure in many instances. This, he said, is entirely different from the logical conclusion when we regard the condition as the result of arterial sclerosis, a change in the vascular structure which from its very nature is permanent and immutable. Every clinician would confirm the observation that one patient with arteries which could not be more altered without obstruction to the blood flow might show but few symptoms, while another, the thickening of whose arteries could scarcely be detected, would suffer from many symptoms of irregular blood supply. Opposed to vascular overtone there was a corresponding condition of vascular undertone, which in other papers he had described under the name of constitutional low arterial tension. The recognition of the physiological fact of the existence of this force constantly acting between the nervous and vascular systems he thought would explain very satisfactorily many of the disorders of circulation met with in functional and organic diseases of the nervous system, and would point the way to the interpretation and treatment of many circulatory disorders hitherto misunderstood and considered incurable.

DR. EDWARD D. FISHER was to have read a paper on

ARTERIOSCLEROSIS IN DISEASES OF THE NERVOUS SYSTEM,

but was prevented by illness from being present.

DR. HARLOW BROOKS read a paper on

VISCERAL ARTERIOSCLEROSIS.[1]

DR. WILBUR B. MARPLE read a paper on

ARTERIOSCLEROSIS IN DISEASES OF THE EYE.

He said that he preferred to use the term "angiosclerosis," since Thoma's investigations had shown that changes in the veins invariably accompany those in the arteries. These changes were more apt to affect isolated retinal vessels, or a short length of one of these, while all the other vessels might be normal. The narrowing of vessels over a short course might readily escape notice unless looked for very carefully. Quite frequently the use of a mydriatic was required.

The various ophthalmoscopic signs of arteriosclerosis were as follows: 1. A general change in the size of the arteries and veins of the eye ground. The narrowing of the arteries might be very slight or so extreme as almost to suggest atrophy of the optic nerve. As the disease affected some parts of the vessel more than others, as was the case in arteriosclerosis in other portions of the body, irregularity in caliber resulted. In contrast to the narrowing of the arteries, the veins often appeared relatively dilated, and actual dilatation occurred in about 50% of all cases. In addition to the narrowing of the arteries, there might be, in the early stages, a tortuosity of certain small branches, especially in the vicinity of the macula. 2. Changes in the color of the arteries. When this was the case the central light streak was broader and of increased distinctness, while the whole surface of the vessel was of somewhat lighter color than normal. This "silver wire" appearance was due to the higher reflecting power from the arterial wall after it had undergone a hyaline fibroid change. 3. Changes in the caliber of the vessels at different points, the points at which such changes were most commonly noted being where a vein was crossed by an artery. In the early stages the first abnormality observed was a loss of the light streak of the vein on either side of the artery, with possibly a very slight diminution of the caliber of the vein under the artery. The vein was also apt to be observed where it passed under the artery, whereas under normal conditions the underlying vein could be distinguished through the translucent artery. In more advanced cases the vein might be very much constricted and wind around the artery, the marked twist being the more conspicuous because the rest of the vein was frequently not all tortuous. Sometimes a vein when passing over a rigid artery was flattened out like a strap.

The changes in the vascular walls in ocular arteriosclerosis might be of two kinds, visible and invisible. Among the former was the occurrence of white lines along portions of some vessels, and sometimes the whole diameter of a vessel was changed into a white cord, frequently with glistening points along it. In addition to these visible opaque changes in the vessel walls there was observed localized and marked narrowing of the retinal arteries, limited to a short section of the vessel, the *arteriosclerosis nodosa* of Raehlmann. Nothing could be seen of the thickened vessel wall, but the abnormally narrowed blood column pointed to this condition. There were, then, a narrow and a broad part of the vessel, the latter looking as though constricted by a band; while sometimes two broad parts were united by a very thin part, and in advanced cases the blood column seemed to be completely broken at certain points. Sometimes the vessel presented knob-like irregularities in caliber, like a string of pearls. Coats had pointed out that the pathology of these two changes in the vascular walls was different. Where the white lines appeared along the vessels there was a fibrosis in which the connective-tissue wall became greatly thickened and encroached more or less concentrically upon the lumen of the vessel. On the other hand, the narrowing of the lumen indicated only by a narrowing of the blood column, and not by any visible change in the walls, was due to a proliferation of the endothelium and was almost invariably eccentric, the lumen being displaced to one side. The two conditions were, no doubt, also due to different causes: disease of the intima, with proliferation, probably resulting from a circulating toxin, and thickening of the connective-tissue wall being probably a strengthening process to compensate for raised blood pressure. Finally, there were aneurismal dilatations or varicose ectasiæ of vessels, which might be oblong or sac shaped and two to four times the normal caliber, and these were more frequent in the veins than in the arteries.

The progressive venous pulse, first described by Raehlmann, was visible not only in the central venous branches, but also in the periphery of the fundus and on all the larger branches of the veins. When it was conspicuously present, the physiological venous pulse on the disk was absent, and this symptom was the expression of the pulse wave transmitted abnormally far into the rigid vessels of the sclerosed arteries which acted through the distended capillaries upon the veins. Besides these various changes in the vessels themselves, we might have, as the result of such changes, hemorrhages and opacity or infiltration of the retina, especially in the region of the macula. It seemed probable that hemorrhages did not occur at the actual seat of disease, but that the changes effected caused obstruction to the circulation, damming back of the blood, and rupture at some spot where the wall was unthickened or in the capillaries where the wall was incapable of much thickening.

Dr. Schweinitz had recently made a useful division of the lesions of angiosclerosis into those which were suggestive and those which were pathognomonic. In the former he included uneven caliber and undue tortuosity of the retinal arteries, increased distinctness of the central light streak, an unusually light color of the breadth of the artery, etc. The most important of the pathognomonic signs was the indentation of the veins by the stiffened arteries, and this was recognized by all observers as the one ocular symptom most nearly pathognomonic. Other signs included in this category were changes in the size and breadth of the retinal arteries of such a character that a beaded appearance resulted, distinct loss of translucency, decided lesions in the arterial walls, consisting of white stripes in the form of perivasculitis, and alternate contraction and dilatation of the veins. It was only when several of these signs were present together, however, that it could be positively asserted that the arterial changes were of great importance. The majority of cases of angiosclerosis were met with in the old, but occasionally it was observed in persons under forty, and even much younger than the latter age, as in the subjects of nephritis and syphilis. It was in part a senile change and in part a definite response to a pathological stimulus.

Both arteries and veins might be affected to quite a marked extent without any evidence of distur-

[1] See page 269.

bance of vision. If considerable visual impairment occurred, it was apt to come on suddenly, as the result of hemorrhage at the posterior pole, or, perhaps, of venous thrombosis; and cases of the latter were especially prone to glaucoma subsequently. Sudden loss of vision might also result from obstruction of the central artery of the retina, a class of cases formerly thought to be due to embolism. As to the location of the lesions, the central vessels, those in the vicinity of the optic nerve, were the most apt to be affected. It was also near bifurcations, especially where they branched almost at right angles to one another, that the lesions were most frequently met with. In speaking of the matter of limitations Dr. Marple warned against the mistake of attributing all vascular changes in the retina to angiosclerosis, since these were frequently of merely a local character. On the other hand, he said it would be equally a mistake to consider the absence of ophthalmoscopic evidence of retinal changes as positive proof that arteriosclerosis was not present in the eye or elsewhere in the body.

As to the significance of these changes, so far as the eye was concerned it was found that glaucoma occurred very frequently in connection with them, and it was to be borne in mind that if acute glaucoma came on suddenly in an eye in which the retinal changes of arteriosclerosis were present, a very guarded prognosis should be given in case an iridectomy were done. The chief significance of the changes, however, was in the assistance they rendered in diagnosing a serious general condition, not infrequently before it was suspected by the patient's regular medical attendant. This was well understood to-day in the case of nephritis, when due to arterial sclerosis, and here the retinal changes were also the result of vascular degeneration. In general arteriosclerosis, as well, the ophthalmoscope afforded valuable information, for in the retina alone were the minute capillaries of the body visible. If these degenerative processes could be demonstrated here, it was very probable that the cerebral vessels were similarly affected. The practical point was that if early evidence of arterial degeneration were discovered ophthalmoscopically, the patient should be subjected to a thorough general examination. Proper treatment could thus be instituted, the results of which were often very satisfactory, and possibly an impending catastrophe might be averted.

DISCUSSION.

Dr. Reynold Webb Wilcox said he considered arteriosclerosis the most important subject before the internalist to-day. Some of the best work in throwing light upon it which had been done recently was by New York men, and especially Dr. Pearce, of Albany. He had been deeply interested in the statements made by Dr. Marple, which he thought impressed the lesson that no one method is to be depended upon in gaining the required knowledge. The ophthalmoscope was certainly of great service, and he believed that if internalists would perfect themselves in its use they would often be able to make a much earlier diagnosis than at present. As to so-called interstitial nephritis, the small red kidney described by Richard Bright, this was not an interstitial affection at all, but in reality an arterial nephritis. It was simply one manifestation of a general arteriosclerosis, and, therefore, it was utterly impossible that in this particular condition the decapsulation of the kidney should be of any benefit whatever.

Dr. Robert C. Myles said that he had met with an interesting experience regarding the manifestation of arteriosclerosis in the nose. Ordinary epistasis, as was well known, was concerned with the region of the septum; but for some time past his attention had been directed to the occurrence of slight hemorrhages due to the rupture of small blood vessels located throughout the turbinate region and the upper recesses. Following these small hemorrhages there were apt to result degenerative changes in the vessels, and the process might even go so far as to give rise to an offensive odor. A careful examination of such cases had shown him that these phenomena were always preceded by a condition of high blood pressure. In nearly all instances they occurred in men of from forty-five to fifty-five years of age, who were apparently in fine health, but who were living under a severe strain. Subsequently, he found these patients became victims of cerebral apoplexy. If we eliminated the septum as a source of the leakage, the occurrence of these little nasal hemorrhages was, therefore, a very significant diagnostic sign of arteriosclerosis, which should be regarded as a distinct note of warning.

Dr. Adolf Meyer said that in the past ten years much progress had been made in the investigation of arteriosclerosis as it affects the nervous system, and as a result of this work much could now be accomplished in the way of prophylaxis. Formerly, the first thing noticed was the attack of apoplexy, but, in consequence of the improvements in the methods of examination which had been made, many indications antecedent to this could now often be detected.

Dr. Bishop, in closing the discussion, said that when the Schott resistance exercises first came into vogue he was very much puzzled to understand how they could be of any service. Now, however, it was clear to him that the benefit resulting from these was fully explained by the effects of the tone-maintaining influence of the voluntary muscles in counterbalancing the tone-maintaining influence of the circulatory system. By these resistance exercises and by moderate ordinary exercise the blood pressure was regulated, and he had frequently noted the bad effects resulting when patients with high blood pressure were for any reason deprived of their accustomed exercise.

Book Review.

Ellis's Demonstrations of Anatomy, being a Guide to the Knowledge of the Human Body by Dissection. Revised and edited by Christopher Addison, M.D., B.S. (Lond.), F.R.C.S., Lecturer on Anatomy, Charing Cross Hospital Medical School; formerly Hunterian Professor, Royal College of Surgeons, England, etc. Pp. 851. Twelfth edition. Illustrated. New York: William Wood & Co. 1906.

This new edition of a very old book, which has won for itself a valued place in medical instruction, does not depart materially from the plan adopted in previous editions. A re-arrangement of the matter has, however, been thought necessary in order to meet the demands of recent teaching. Sixty-two illustrations have been added, nearly half of them in colors, and a number of the old illustrations have been improved. The book is arranged with side references on each page, which is always a convenience and is particularly useful in a book of this character which is not intended to be consecutively read.

THE BOSTON

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INSANITY AND THE LAW COURTS.

IT must be discouraging to mental nosographers to discover, after devoting several decades to the laborious study of insanity in large institutions, that types of mental alienation exist, which they never dreamed of incorporating in the printed volumes representing the fruits of their industry and learning. Out of the growing list of these ordinarily unappreciated insanities, we select only two for comment: the " amnesic " and the " brain storm " varieties, and refrain from going farther than the mere mention of the " senile dementias " so common to testators with large fortunes to dispose of.

Before proceeding with our theme, we wish to say a word in excuse of those learned colleagues, both in this country and abroad, whose written opinions, in the form of textbooks, convict them of the crassest sort of ignorance with regard to the two particular forms of insanity we have chosen to discuss. Our main argument in their defence lies in the fact that these forms of insanity, of which they are so palpably ignorant, appear to afflict persons of the highest social standing and are manifest only at the time when what is carelessly spoken of as a crime is committed by them, and they are called to an accounting before the courts. The only place, then, that these forms of insanity may be properly observed is in the criminal courts, and any one at all familiar with the multifarious duties of the alienist who presides over a large hospital knows that he has no time to go ferreting out types of mental alienation in such uncongenial places. We are positive that other extenuating circumstances could be put forward, but we consider the one cited abundantly sufficient.

As we understand amnesic insanity — and we do not for a moment wish to be considered as flaunting our knowledge in the faces of the writers of textbooks on mental disease — it has one peculiarity that is absolutely pathognomonic. The amnesia must cover a certain (legally) important period prior to and following the commission of the crime and must embrace every possible incriminating circumstance connected therewith, down to the finest possible detail. There are two well-known varieties of amnesic insanity,— the epileptic and the alcoholic. If the gentleman temporarily detained as a delinquent committed the criminal act, murder or what not, while in a drunken brawl, it is a case of alcoholic amnesic insanity. If it can be shown that he happened to have a convulsion while teething, it is the epileptic variety.

The " brain storm " variety may occur in a pure and independent form, or it may complicate the amnesic. It is the type most commonly observed among gentlemen murderers, and is marked by the " rolling eye " and, at the moment of committing some deed of violence, by such coprolalic utterances as *blackguard*, *beast*, and so forth. The " storm " is of brief duration, covering only the time of the murder and the first one or two visits of the alienist sent by the defence subsequent to this event. A striking feature of this peculiar malady is that, although the lunatic talks openly of his intended crime for months prior to the unlawful act and carries upon his person deadly weapons, with which to carry out his criminal intention, nobody ever suspects for a moment that he is insane.

Whereas this " brain storm " form of insanity appears to be peculiar to murderers, the amnesic forms are most commonly observed among financiers and persons having large trust funds within their control, and it would seem that the widow and the orphan, whose money has been irrevocably dissipated by reason of the mental unbalance of these unfortunates, ought to be more lenient toward them in the future.

We have noticed a tendency on the part of certain writers for the lay press, notably those connected with avowedly comic publications, to scoff at the types of insanity we have been discussing and to speak lightly of their victims collectively as the " Insane Murderers' Trust," the " Demented Financiers' Union," etc. These writers appear to regard the whole matter as a species of medical sophistry, and, indeed, we are

inclined to ask ourselves if their gibes are not entirely warranted by the facts.

Sophistry, or the twisting of facts to fit preconceived hypotheses, has long been the bane of the medical doctor. From as far back as the time of Montaigne, the profession has been lampooned and pilloried by essayists for this grievous failing. Molière, as almost every schoolboy knows, devoted whole plays, replete with the most crushing sarcasm, to the exposition of this professional weakness. Even the gentle, but not less sarcastic, Holmes made it a target for the shafts of his brilliant satire. When it crops out, as it not infrequently does, in medical discussions or in the exploitation of some pet theory in the columns of strictly medical publications, it is always offensive but not particularly harmful. When, however, it becomes the main stock in trade of the medical expert and is employed by him in a court of law to show that a criminal is irresponsible for his acts, its harmfulness is twofold; it serves to defeat the ends of justice and at the same time, through the publicity given it by the lay press, it casts undeserved discredit upon the profession in general and the expert witness in particular.

So long as the laws relating to expert testimony remain as they are, and so long as trials for capital crimes continue to be conducted as at present, the medical profession may make up its mind that the theories concerning insanity which to-day pass muster in the courts will continue to be a barrier to the advancement of mental science and an obstacle to the proper appreciation of the untiring efforts of well-balanced and devoted men.

ACUTE CARDIAC DILATATION.

The other day a colleague died suddenly in his prime of "heart failure" during an attack of grippe. A patient was doing so well after his pneumonia that his physician permitted him to sit up in bed and play at cards with his wife to while the time away; the patient suddenly fell back upon his pillow and presently expired. The case of a little child, convalescent after diphtheria, terminated in like manner while it was engaged with its toys upon the floor. Such patients have collapsed even while straining at stool. Deaths from acute cardiac dilatation, during or after acute infectious diseases, are being reported with disconcerting frequency, and counsel is by no means amiss, that the period of rest after these grave diseases should be prolonged, that there should be freedom from excitement, anxiety and strain, and against the too early resumption of active life by such patients.

In many infections — acute rheumatism, diphtheria, scarlet fever, influenza, pneumonia, endo- or peri-carditis, typhus, typhoid, erysipelas and the like — the myocardium may be seriously affected by the action of the various toxins upon it; wherefore a relaxation of muscular tissues, a loss of tone in them, or a parenchymatous degeneration must be feared and carefully taken into account. Cardiac dilatation must be particularly guarded against when the temperature changes have been marked and prolonged.

Beside the toxic element the dilatation is also due to heightened blood pressure, especially within the right cavities, and to the impaired resistance which must generally follow. In pneumonia, where the pulmonary obstruction is great, the right ventricle cannot empty itself during the systole; and regurgitation into the auricle is inevitable, so that that chamber becomes distended in its turn. Nor can the left heart perform properly its functions, by reason that its chambers contain, instead of the usual amount of blood, so little that the normal systole and diastole are not excited. Another factor, quite independently of these two, may be a paralysis of the cardiac plexus, which obtains especially in diphtheria.

What signs should we observe in guarding against acute cardiac dilatation? A weak, failing, rapid, intermittent pulse, dyspnea, cyanosis of lips and finger tips, a dusky or ashen or gray-hued skin, epigastric pulsation, pain about the precordium, increased cardiac dullness, especially to the right of the median line, and distention of the cervical veins.

What may be done under these grave circumstances? The patient must lie prone; leeches or wet cups or ice bags should be applied to the precordium; venesection is appropriate in these desperate cases; strophanthus *per os* with brandy or ammonia, or by hypodermic; oxygen should always be at hand; camphor and ether (one part in eight) should be prepared for injection. The nitrites should be employed, to the excellent end that the patient may be bled "from the veins to the arteries"; glonoin in drop doses every fifteen minutes. Beverly Robinson, in a very wise paper,[1] finds that the dreadful lassitude generally following upon grippe is due to

[1] The Clinical Manifestations and Treatment of Some Forms of Acute Cardiac Dilatation. Am. Jour. Med. Sci., February, 1907.

the dilated heart, and he deals comprehensively with this condition not only with regard to the infections, but also as it is due to nervous origin or to irregular modes of life. We may find cardiac dilatation not only as a lesion of the diseases here stated, but also as the result of chronic endocarditis, of renal diseases, of arteriosclerosis, of arduous and continuous work (as among the laboring classes), of frequent heavy strain (as in athletes), in late syphilis or chronic alcoholism, of anemia, leukemia, chlorosis, goitre, angina pectoris, paroxysmal tachycardia, a mitral stenosis, emphysema, an old myocarditis and after profound emotional disturbances.

INTESTINAL PARASITES AS INFECTING AGENTS.

THE transmission of disease by means of insects, acting either as intermediate host or simply as germ carrier, is well known. Merely to mention the part played by the mosquito in transmitting malaria and yellow fever is sufficient evidence of the importance of insects in infecting man with disease. That intestinal parasites may have some such rôle is not so well recognized.

In a recent address on the influence of parasitism on the host, before the Section on Zoölogy, of the American Association for the Advancement of Science, Ward[1] points out that various animal parasites inhabiting the human intestinal canal burrow into the mucosa and thus form a portal of entry for bacteria. It is probable that bacteria do not penetrate the uninjured mucous membranes, but with this aid from intestinal parasites they may be enabled to enter the system and produce their characteristic lesions. Typhoid and cholera infections may take place in this way in some cases. In this connection it is of interest to note that in 1762 the whip worm (Trichuris) was looked upon as a cause of typhoid fever and its abundant presence was noted by early investigators in many epidemics of typhoid. Bacteria that are normal inhabitants of the intestine may also penetrate in this way and produce ulcerative or inflammatory lesions. In 1901 Metchnikoff suggested that sometimes appendicitis might so originate. The full extent of the part played by intestinal parasites as infecting agents is not known but it is certainly one way in which they may bring harm to their host, and this action deserves further study.

[1] Science, Feb. 8, 1907.

TRANSACTIONS OF THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

THE transactions of the second annual meeting of the National Association for the Study and Prevention of Tuberculosis, which was held in Washington in May last year, have recently been published in a volume of 638 pages. The work done by this association must be regarded as the most far-reaching in its scope and painstaking in its methods of any which is systematically undertaken against tuberculosis in this country. We may, therefore, look in the published proceedings for an authoritative statement of the present status of the various departments into which the tuberculosis work is being divided. In the organization of the association it has already seemed advisable to divide it into several sub-sections, presided over by individual chairmen each giving attention to some special phase of the general subject. Papers, for example, were read at this meeting under the auspices either of the sociological section, the pathological section, the clinical section, and finally of the surgical section. It is clear that this arrangement will tend to concentrate papers of similar sort, and thereby, as time goes on, simplify references and increase the efficiency of the general system. It is not our purpose to detail the many admirable papers which appear in this imposing volume. There can be no question that the work which they represent is of such a character that definite progress may be expected toward a clear understanding of the disease in its various social and medical relations. The volume is suitable for binding, but we venture to suggest that for those who do not wish to have this done and yet desire to keep the records of the association in convenient form for reference, it would be desirable to print the titlepage, or a part of it, on the back of the pamphlet.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, Feb. 20, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 29, scarlatina 54, typhoid fever 5, measles 10, tuberculosis 42, smallpox 0.

The death-rate of the reported deaths for the week ending Feb. 20, 1907, was 23.38.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health

for the week ending Saturday, Feb. 23, 1907, was 225, against 261 the corresponding week of last year, showing a decrease of 36 deaths and making the death-rate for the week 19.48. Of this number 108 were males and 117 were females; 207 were white and 18 colored; 126 were born in the United States, 93 in foreign countries and 6 unknown; 48 were of American parentage, 141 of foreign parentage and 36 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 41 cases and 2 deaths; scarlatina, 53 cases and 2 deaths; typhoid fever, 3 cases and 0 deaths; measles, 11 cases and 0 deaths; tuberculosis, 39 cases and 20 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 44, whooping cough 3, heart disease 15, bronchitis 0 and marasmus 3. There were 11 deaths from violent causes. The number of children who died under one year was 37; the number under five years 53. The number of persons who died over sixty years of age was 73. The deaths in public institutions were 73.

There were 7 cases and 7 deaths reported from cerebrospinal meningitis during the week.

Meeting of Instructive District Nursing Association. — The twenty-first annual meeting of the Boston Instructive District Nursing Association was held Feb. 27, at the District Nursing House. Addresses were made by Dr. Elliott P. Joslin, Mr. Robert A. Woods, Miss Martha H. Stark, District Superintendent, and Miss Charlotte Macleod, Superintendent of the Training School.

Nurses in the Schools. — The hearing before a committee of the Massachusetts Legislature relative to providing nurses for the schools was held at the State House, Feb. 26, and was largely attended. The opinion was unanimously expressed, by physicians and others, that a regular system of nursing in the public schools was feasible and desirable. No opposition whatever was expressed to the bill, except in minor and easily-adjustable details.

Leave to Osteopathists to Withdraw. — The Massachusetts House of Representatives' Committee on Public Health has granted leave to withdraw on the petition of Arthur M. Lane and others for the establishment of a state board of examination and registration in osteopathy.

Is Vaccination Un-American? — At a disorderly hearing regarding the vaccination bill before the Massachusetts State Legislature, introduced by Dr. Charles Harrington, many remonstrants appeared, and when not allowed by the committee to express at length their objections to the bill, took refuge in stigmatizing such attempted legislation as un-American and Russian. The author of the bill retired from the council chamber at the psychological moment after a masterly argument in its support. We await the ultimate outcome with interest.

In Honor of David W. Cheever. — The staff of the Boston City Hospital gave a dinner to Dr. David W. Cheever at the Tavern Club, Monday evening, Feb. 25. The occasion was a tribute to Dr. Cheever on his retirement from the presidency of the staff, a position which he had held for fifteen years. Dr. Cheever has been a member of the Hospital staff since the opening of the institution in 1864.

About fifty men were present at the dinner representing the board of trustees and members of the hospital staff. Dr. C. M. Green, Dr. Cheever's successor as president of the staff, presided and introduced the speakers of the evening: Mr. A. Shuman, president of the board of trustees; Dr. J. G. Blake, vice-president of the staff; Dr. George B. Shattuck, senior visiting physician, and Dr. George W. Gay and Dr. F. S. Watson representing the surgical section of the staff. Dr. Gay, on behalf of those present, presented Dr. Cheever with an engrossed address signed by the participants, and Dr. Watson, representingt he staff, presented a very handsome silver cup. Dr. Cheever's acknowledgment of the appreciative recognition of his life and work was of great interest and marked by much feeling.

NEW YORK.

Deaths and Births. — According to the annual report of the State Department of Health there were in New York State during the year 1906, 140,773 deaths, as against 183,012 recorded births. In the cities of the state the birth-rate was 19.17 and the collective death-rate was 15.9.

German Charity Ball. — By the recent annual German Charity Ball in New York over $11,000 was netted. Among the institutions to which this fund has been distributed are the German Hospital and Dispensary, which received $2,000, and St. Francis Hospital, St. Mark's Hospital and the German Policlinic, to each of which was allotted $1,300.

Bequest to Hospital. — Among the charitable bequests in the will of the late ex-Governor

Frank Wayland Higgins is the sum of $10,000 to the Olean General Hospital, in the town where Mr. Higgins resided.

DEATHS FROM EXPOSURE AT FUNERALS. — Dr. William F. Finney, of Trenton, N. J., has set an example which might well be followed in other instances where such a course is practicable. Instead of having public services at the present inclement season for his son, who died recently, he has had the remains placed in a receiving vault, postponing the formal funeral until the latter part of May. Dr. Finney states that he has seen so many deaths result from exposure at funerals that he is not willing to have the health and lives of the living risked for the sake of paying tribute to the memory of the dead.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, FEB. 9, 1907.

1. *ADAMI, J. G. *The Myelins and Potential Crystalline Bodies of the Organism.*
2. WOODS, M. *The Relation of Alcoholism to Epilepsy.*
3. ALLEN, M. M. *The Value of Temperance Instruction.*
4. HALL, V. S. *The Value of Instruction Regarding Alcohol.*
5. WHOLEY, C. C. *Infantile Head Nodding and Rotary Spasm.*
6. CHANCE, B. A *Case of Secondary Hypernephroma of the Iris and Ciliary Body.*
7. PROESCHER, F. *A Remarkable Case of Carcinoma of the Gall Bladder.*
8. *OPHÜLS, W. *Experimental Chronic Nephritis.*
9. SNYDER, J. R. *Rheumatism of Childhood.*
10. *DUNN, C. H. *The Clinical Aspects of Rheumatic Fever in Childhood.*
11. DE SCHWEINITZ, G. E. *Auto-intoxication in Relation to the Eye.*
12. *WHITE, F. W. *Value of Tests for Invisible Hemorrhage in Diseases of the Digestive Tract.*
13. *GRAHAM, C. *Diagnosis between Duodenal Ulcer and Gallstone Disease.*

1. Adami describes the polarizing microscope and calls attention to it as a neglected instrument. By means of this he has studied the occurrence of myelin globules. Myelin is a substance long recognized, but still little understood. It has been supposed to be related to soaps of oleic acid and to cholesterin. It is suggested that bodies of the myelin type may be intermediate products in the process of fatty degeneration.

8. Ophüls summarizes the results of work done in the past upon experimental nephritis. Numerous substances have produced epithelial lesions in the kidneys and some interstitial lesions are said to have been produced. Ophüls himself has produced marked chronic interstitial nephritis in dogs by means of lead acetate and bichromate of potassium.

10. Rheumatic fever is the term chosen by Dunn to designate what is commonly called acute rheumatism in childhood, including the cardiac and other symptoms, as well as the arthritic manifestations. He gives the literature and facts as to its infectious and microbic etiology a critical examination, and concludes as a result that at present it seems advisable to accept the Micrococcus rheumaticus of the English investigators, Poynton and Paine, not as the absolutely proven, but as the probable cause of the disorder. A careful study of some three hundred cases treated at the Children's Hospital, Boston, during five years, brings out the following points as characteristic of the disease, as here conceived, in early life: (1) The comparative mildness of the articular manifestations. (2) The relative frequency of cardiac manifestations. (3) The large number of cases in which only cardiac manifestations occurred; an actually greater number than those with only articular symptoms. (4) The frequent primary occurrence of endocarditis or pericarditis. (5) Cardiac manifestations are the most severe. In acute endocarditis, and even more in acute pericarditis, the severity of the case and danger to life are greater than in acute arthritis. (6) A notable feature was the tendency to recurrent attacks with varying manifestations, arthritic, pericardial, etc., and not following any particular order, one form one year and another form for another year. What is called "broken compensation," and generally attributed to overexertion, was observed in 121 of the 300 cases. Dunn attributes it here to a fresh infection rather than to overstrain. As regards diagnosis, he says, given any case of arthritis, especially if with the physical signs of endocarditis, or any case of acute infectious disease without other localization than in the pericardium or endocardium in childhood, the probability is that it is a case of rheumatic fever. Previous attacks, chorea, sore throat, etc., strongly increase this probability. Endocarditis and other infections from the pyogenic cocci or as complications of other recognized infections are readily diagnosable. As regards prognosis, he says many physicians do not recognize that the chances of death may be as high as one in five. The cardiac complications are more frequent than in the adult. The severest form is pericarditis, with a high mortality. In conclusion, Dunn points out that the general characteristics are those of a definite clinical entity, and most probably a specific infection to be placed in the same rank as scarlet fever and measles as definite disease species.

12. White, from an experience of nearly one thousand examinations of gastric contents and stools, mainly at the Boston City Hospital, finds that the guaiac or aloin test for invisible blood is, in spite of exceptions, the most valuable single clinical method recently developed for the recognition of latent cancer and ulcer of the digestive canal, and as a guide in the treatment of peptic ulcer. It consists in shaking up 10 cc. of gastric contents or feces, rubbed up with a little water, with 3 cc. of glacial acetic acid, and then extracting with an equal volume of ether by gently shaking back and forth. The tube is then allowed to stand till a clear layer of ether separates; the latter is then poured off and tested for blood by the addition of 10 drops of freshly prepared tincture of guaiac or aloin, and 30 drops of hydrogen peroxide or well-ozonized turpentine, the latter preferably when aloin is used. In the presence of blood the guaiac gives a clear blue color to the mixture, while the aloin gives a clear cherry red. The method is very delicate as well as very simple and practicable, and should be invariably used in conjunction with the other means of physical examination. Its value depends on the care with which other sources of bleeding are excluded. It has most value with the stools, when both positive and negative results are significant. With gastric contents, positive results are often misleading, but negative results are significant. One should never be content with a single test, however much it may agree with previous opinion of the case. In gastric and duodenal ulcer the chief value of the test is: (*a*) In distinguishing ulcer from a disease of the biliary passages or from a neurosis; (*b*) as a premonitory symptom of severe hemorrhage ; (*c*) as a measure of the results of medical treatment and as an aid in deciding when surgical measures are indicated; (*d*) in prognosis, in gastric cancer, in diagnosis from anacid gastritis, achylia gastrica, pernicious anemia and similar conditions, and from chronic gastric ulcer. In general, the test is of great value in discovering or ruling out hemorrhage in a suspected case.

13. Graham reviews the symptoms of gallstone disease and duodenal ulcer with special reference to their differentiation from each other, using for his study 141 cases with tabulated histories. In spite of the most painstaking care, there will always be some cases of ulcer undistinguishable from gallstone disease, and *vice versa*, though to a less extent. The sudden, irregularly appearing pains unconnected with eating, the lack of history of gastric ailment between the attacks, the diaphragm spasm and dyspnea, the less pronounced vomiting and eructation and

the slighter relief they afford, are more especially characteristic of gallstone disease. Nausea and intense retching when they occur may be followed by vomiting of a small amount of thin, yellowish, bitter liquid mixed with mucus. In duodenal ulcer the pain comes on in attacks lasting for days or weeks, and though often sudden and sometimes severe, is of a more gnawing and burning nature, not so intense as with gallstones, and clearly related to food, its intensity being often modified by the kind and quantity of food taken. It may be irregular as to the time of the separate attacks, but is regular during the period of stomach disturbance. It is relieved for a time by food and hot drinks; soda and irrigation give relief. Spasm of the diaphragm is rare except in case of perforation. The chronic gallstone case with impacted stone ulceration and adhesions, without jaundice, and with predominating gastric symptoms, such as gas, sour belching, moderate pain following eating, dilatation and impaired appetite, will be too often diagnosed as ulcer; while the duodenal ulcer with an early history of irregular attacks of sudden, sharp, intense pain of peritonitis, without obstruction or hyperacidity, with no gas, vomiting, or sour eructations, will be as surely mistaken for gallstones. It is these early acute types with tendency to perforation that are most frequently confused in the diagnosis. Early ulcer is more often mistaken for gallstones than is early gallstone disease for ulcer, while in the chronic forms of both conditions, the reverse is apt to be the case.

Annals of Surgery.

February, 1907.

1. *Dawbarn, R. H. M. *Sequestration Anemia in Brain and Skull Surgery.*
2. *Greenough, R. B., and Simmons, C. C. *Papillary Cystadenomata of the Breast.*
3. McDonald, E. *Puerperal General Peritonitis.*
4. *Moynihan, B. E. A. *Subacute Perforation of the Stomach and Duodenum.*
5. Benjamin, A. E. *Report of a Case in which a Large Number of Foreign Bodies were Removed from the Stomach.*
6. Barling, G. *Sarcoma of the Small Intestine and Mesentery.*
7. Dowd, C. N. *Congenital Lumbar Hernia at the Triangle of Petit.*
8. Walker, Geo. *Tuberculosis of the Bladder.* (Continued article.)
9. *Cunningham, J. H. *Recurrent Intermittent Retention of Urine Occurring with the Remissions in a Case of Pernicious Anemia. Bottini Operation.*
10. *Scudder, C. L. *Arthroplasty upon the Elbow-Joint.*

1. By applying a tourniquet to each thigh just tight enough to nearly stop the venous blood on its return, Dawbarn is able to remove from active circulation enough blood to cause definite lowering of the general blood pressure. Used in connection with operations on the skull and brain the following points are claimed for the method: (1) A diminution in the amount of anesthetic needed, with consequent relative safeguard against bleeding due to straining from subsequent vomiting and against hernia cerebri; also against lowering of vital heat. (2) Ease of control of hemorrhage during operation because of lessened intravascular tension. (3) A shorter operation because of a dryer field. (4) Less danger of sudden death from pressure on the respiratory center. (5) More space between brain and brain case.

2. Twenty breast tumors of the papillary cystadenoma type showed the following characteristics: (1) They were single or multiple involving the large ducts near the nipple, and composed of one or more cyst cavities, from the walls of which grew papillary outgrowths composed of fibrous tissue stroma and a luxuriant growth of duct epithelium in the form of irregular gland tubules and polypoid projections. (2) They occur in the male breasts as well as in the female. (3) They occur at all adult ages and independent of trauma, marriage or lactation. (4) They are usually painless. (5) They are generally situated near to or beneath the nipple. (6) They are usually of small size, but occasionally attain the dimensions of an orange. (7) They are of slow growth. (8) Their most characteristic symptom is the presence of a discharge from the nipple, which may be serous, but is usually bloody in character. (9) The axillary glands are not enlarged. (10) Fifteen per cent of the cases were associated with a form of cancer (adenocarcinoma) of a relatively low type of malignancy. (11) Treatment demands a complete removal of the tumor, either by excision, or, if necessary, amputation of the breast.

4. In subacute perforation of the stomach there is a sudden rupture of an ulcer, *always of the chronic type*, followed by a definite localization of the fluids escaping from the stomach, instead of their being spread generally through the abdominal cavity as in the acute type. Moynihan has seen this occur under the following conditions: (1) An empty condition of the stomach; (2) the plugging of the opening of the ulcer by a tag of omentum; (3) the opening may be sealed over by plastic lymph; (4) adhesion of the stomach at the base of the ulcer to the anterior abdominal wall, the under surface of the liver, or to the pancreas. The symptoms are the same in subacute as in acute perforation except that they are less intense. The treatment is either to clear the ulcer of adhesions and infold it, or to perform gastro-enterostomy, or in some cases to combine both these procedures.

9. Cunningham reports a rare case of intermittent urinary retention in a man of forty-seven years suffering from pernicious anemia. There were five repeated attacks of retention, always associated with relapses of the anemia. Concurrent with the changes in the blood and weakness of the general muscular system, the bladder wall lost its contractile power. As the anemia improved, the bladder symptoms diminished or were even absent. A Bottini operation was of benefit in overcoming the obstruction in the prostate.

10. Scudder reports a case of arthroplasty on the elbow with excellent final result. He advises section of the olecranon in order to preserve the triceps action as well as to get better exposure of the joint. The interposed flap of fascia, with a little fat, was swung down between the bared ends of the bones from the posterior surface of the upper arm. The operation is not suited to elderly individuals.

February, 1907.

1. *Halstead, A. E. *Ectopia Testis Transversa.*
2. Porter, J. L. *The Treatment of Hip Disease.*
3. Hessert, W. *Perforation of Gastric Ulcer. Report of two Cases with Recovery.*
4. Kahlke, C. E. *Rupture of the Abdominal Wall.*
5. Dowling, G. A. *Secondary Sarcoma.*
6. Yerger, C. F. *Multiple Aneurysms of the Large Vessels.*
7. *Andrews, E. W. *The Operative Treatment of Wounds of the Diaphragm.*
8. Gamble, W. E. *Recent Progress in Surgery of the Conjunctival Sac.*
9. Martin, F. H. *Uterine Prolapse.*
10. *Heineck, A. P. *The Terminations and the Treatment of Extra-Uterine Pregnancy.*
11. Adams, C. *Gunshot Wounds of the Cranium.*
12. Reed, C. B. *Pyelo-nephritis of Pregnancy.*
13. Bybee, A. *Tuberculous Peritonitis in the Female.*
14. Riebel, E. C. *Abdominal Gunshots.*
15. Andrews, E. W. *Surgery of the Abdomen.*
16. Farrell, P. J. H. *Primary Field Dressings.*
17. Sullivan, T. J. *Gunshot Wounds of the Neck.*

1. At an operation for inguinal hernia Halstead found that both testicles occupied the left scrotal pouch, both having a common tunica vaginalis. They were small, but of equal size and of normal consistency. The epididymes were fused from the middle third to the tail forming a mass closely resembling a uterus. The vasa deferentia were distinct. These developmental changes undoubtedly antedated the descent of the testicles, thus causing the right testis to pass through the left inguinal canal. Reports of only two similar cases could be found.

7. The statistics of Suter on the operative mortality following wounds of the diaphragm show, following the transpleural operation, 5.26% of deaths; following laparotomy, 28.57%; and following the combined method (thoracolaparotomy), 25%. Andrews adds a further operative case of his own in which three operative steps were necessary to effect a cure: (1) Closure of the stomach

wound; (2) suture of the diaphragm; (3) aspiration of pleural cavity to remove turbid material.

10. The results of 32 cases of extra-uterine pregnancy are given in detail by Heineck. In only 3 was there a history of previous sterility; 16 had had one or more children, and 9 had had one or more miscarriages. Fifteen of the cases were between twenty and thirty years of age; 11 were between thirty and forty. Signs of pregnancy, such as tender breasts, enlarged uterus, and softened cervix were noted in about half the cases. As highly suggestive of extra-uterine pregnancy, Heineck considers (1) pain in the lower abdomen, occurring in 30 cases; (2) menstrual irregularities such as delayed or skipped periods, found in 28 cases; and (3) vaginal hemorrhage with a palpable mass in one or the other fornix, present in 31 of the cases. Conception took place in the right tube 17 times; in the left, 14 times. Pain intermittent and colicky in character was complained of by 23 of the patients; 5 experienced a single severe pain preceding rupture of the ectopic mass. In 20 cases palpation of the mass produced severe pain. There were two deaths in the series, each due to acute generalized peritonitis.

THE LANCET.
FEB. 2, 1907.

1. *BENNET, W. *Pain in the Groin.*
2. *WEST, S., and CLARKE, T. W. *Idiopathic Cyanosis Due to Sulph-Hemoglobinemia (Enterogenous Cyanosis).*
3. HARRIS, W. *The Causation and Treatment of Some Headaches.*
4. *CRACE-CALVERT, G. A. *On Opsonins and the Opsonic Index and Their Practical Value in the Treatment of Disease, Especially with Regard to Pulmonary Tuberculosis in Sanatorium Patients.*
5. KINGHORN, A. *A Review of the Present Means of Combating Sleeping Sickness.*
6. CASTELLANI, A. *Paratyphoid Fever in the Tropics.*
7. LARKINS, F. E. *A Case of Transposition of the Viscera.*
8. PARSONS, J. H. *The Visual Insufficiency of the Uncorrected Myope.*
9. CAMPBELL, H. *The Role of the Blood Plasma in Disease.*
10. MACEWEN, H. A. *German Methods of Meat Inspection as Carried Out in Berlin.*

1. Under the subject, "Pain in the Groin," Bennet gives various illustrative cases in which this symptom has been a prominent feature. He takes them up in two groups: (1) Those in which the incidence of the pain seemed to be from above; and (2) those in which it seemed to come from below. Among the first he describes cases of prolapsed ovary, umbilical hernia, stone in the bladder and ureter and others; in the second group were cases of femoral hernia, flat foot, popliteal sarcoma, varicocele and others. He concludes that pain in the groin may arise from causes remote or near that region; that examination should be made in the erect as well as in the recumbent position; and last, that the search for the cause for pain in the groin should be a most thorough one, as it may be a very serious condition.

2. Van der Bergh, of Rotterdam, in 1905 was the first to demonstrate that certain cases of cyanosis, hitherto supposed to be due to methemoglobin are in reality due to sulph-hemoglobin. This is likely to be the case in those instances where it cannot be shown that headache powders, coal-tar products or certain other drugs have been taken for any length of time. The substance is not in the serum, but is found only in the corpuscles; this is also true with methemoglobin. The condition is supposedly due to the absorption of H_2S from the intestinal tract; whether this is due to bacteria forming this substance or to abnormal proteid decomposition from other cause is not yet determined. The writers give the details of their most interesting case and also consider all the other reported cases of this condition. The cases of cyanosis due to methemoglobin have been associated with diarrhea and have improved on a milk diet; cases of sulph-hemoglobin have had constipation and have not improved till this condition was relieved.

4. Crace-Calvert gives the result of his experiences with the opsonic index in treating consumption at sanatoria with tuberculin. Except in very acute forms of pulmonary tuberculosis he advises treatment with tuberculin (guided by the opsonic index) when ordinary sanatorium methods fail. The technique is as yet far too difficult for general use.

BRITISH MEDICAL JOURNAL.
FEB. 2, 1907.

1. SEMON, F. *Some Points in the Diagnosis and Treatment of Laryngeal Cancer.*
2. *ROBSON, A. W. M. *Duodenal Ulcer and Its Treatment.*
3. CUFF, A. *A Case of Repeated Abdominal Section for Perforation of Gastric Ulcers.*
4. SKIRVING, A. A. S. *Multiple Internal Diverticula of the Small Intestine.*
5. *FRENCH, H. *Opsonins and Their Utility in Practical Medicine.*
6. HILL, L. *Note on the Temperature of Japanese Hot Baths.*

2. This is an exhaustive consideration of the diagnosis, treatment, prognosis, etc., of duodenal ulcer in all its varieties and stages. The writer believes that it should now be considered separately from gastric ulcer and that a differential diagnosis is nearly always possible. He considers that a posterior gastro-enterostomy is the only treatment for duodenal ulcer. He has operated on sixty-six cases without any deaths from the operation. The ultimate issue as well as the immediate results are good. He sits the patient upright in bed at once after operating. It is important to see that the patient is well protected from cold in this position; the writer makes use of a cotton wool suit made by the nurse of gamgee tissue both during and after the operation. Feeding by mouth is begun as soon as nausea from the anesthetic has passed away. The writer considers in special detail the treatment of hematemesis and perforation.

5. The writer gives a broad consideration of the theory of opsonins, the technique of obtaining the opsonic index and the application of opsonins to medicine in general. In a few diseases, such as acne, the opsonic index has been so often worked out and the results tally so closely that the writer thinks that injections of staphylococci can now be made in most cases of acne without first determining the index.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, NO. 5.
JAN. 31, 1907.

1. *LÖFFLER. *New Methods for the Rapid Staining of Micro-organisms.*
2. BOSSE, P. *Spinal Anesthesia with Tropacocain.*
3. *MÄURER, A. *The Influence of Quinine on the Uterine Contractions.*
4. *ALEXANDER, A. *Fever in Carcinoma.*
5. *KOTHE,. *A Peculiar Form of Chronic Stenosis of the Splenic Flexure.*
6. RONA, D. *A Case of Retro-Peritoneal Echinococcus.*
7. AXMANN. *Treatment of Diseases of the Eyes with Uviol.*
8. FISCHER, O. *A Pipette to Measure Serum for the Widal Reaction.*
9. LASER, H. *The Occurrence of Deafness in School Children and its Causes.*
10. FRAENKEL, M. *A Case of Gout in a Four-Year-Old Child.*

1. Löffler recommends for the staining of spirochetes and trypanosomes a modification of the well-known Giemsa stain. The latter method takes twenty-four hours and the results are often unsatisfactory. Quick staining can be accomplished by heating a few drops of the Giemsa stain in a ½% glycerin solution just before using. Malachite green is used as a counter stain.

3. Quinine, according to Mäurer, has a marked action on the uterine muscle, bringing on contractions or increasing those already present. It is extremely useful in abortion and in uterine inertia, producing the desired effect in 78% of his cases. The dosage is important, for small doses have no action, and very large ones possibly cause paralysis of the uterine muscle. He recommends the following method of administration: 1.0 gm. (15 gr.)

by mouth, followed in one hour, if necessary, by 0.5 gm.; if there is still no effect, a final dose of 0.5 gm. Untoward effects on the child or the mother have not been observed.

4. Alexander discusses the occurrence of fever in carcinoma, and reports four cases, all accompanied by ulceration of the growth. Of Freudweiler's 117 cases, 108 were cancers of the gastro-intestinal tract. Alexander's conclusions are as follows: there may occur in cancer fever of atypical course, due to auto-intoxication by products of the neoplasm itself; the fact that ulceration is usually present is simply a coincidence. [This last conclusion is open to doubt, for it does not explain the rarity of fever in non-ulcerated cancer, nor the fact that over 90% of these cases occur in cancer of the gastro-intestinal tract, where ulceration is the rule. It would seem more probable that the fever is due to the absorption of decomposition products of the growth, or of bacterial toxins, the result of secondary infection.]

5. Kothe reports an instance of stenosis at the splenic flexure, caused by an abnormally acute angle between the transverse and descending colons, with the formation of a spur projecting into the lumen. Gas accumulating behind caused complete closure of the bowel owing to a valve-like action of this spur. Corresponding to this there were periodic attacks of obstruction. Cure after entero-anastomosis with Murphy button.

Münchener Medizinische Wochenschrift, No. 5.
Jan. 29, 1907.

1. *Frænkel, C. *The Spirilli of Tick Fever.*
2. Mosse, M. *Do Leucocytes have a Heterolytic Action?*
3. *Huber, A. *Heredity in Gastric Ulcer.*
4. *Flesch, M. *The Pathology of Appendicitis.*
5. Gläuzel, A. *Case of Severe Tetanus, with Recovery.*
6. Hochheim, K. *A Case of Late Traumatic Apoplexy.*
7. *Rupfle, J. *A Case of Ascending Obliterating Arteriitis after Trauma.*
8. Blaschko, A. *The Frequency of Gonorrhea in Germany.*
9. Vörner, H. *Statistics about Gonorrhea in the Male and Its Consequences for the Wife.*
10. *Türk, W. *The Color Index of the Red Corpuscles.*
11. Mühlens and Hartmann. *The Cause of Vaccinia.*
12. Weil, A. *The Superficial Action of Percussion.*

1. In the course of experimental work with the spirillum of African tick fever, Frænkel was able to produce immunity in animals. He regards the organism as distinct from that of relapsing fever, because the animals immunized against the former could still be infected with the latter.

3. The question of heredity in gastric ulcer has been neglected hitherto. Huber of Zürich found that the disease was hereditary in 15% of his cases and in 33% of those of Bernhard. His histories are very striking, showing the presence of the disease sometimes in three generations. Reports of thirty-four families are given.

4. Flesch has observed the repeated occurrence of appendicitis in certain families, but attributes this more to the environment than to hereditary influences. He considers that the appendix is far from being a rudimentary organ in the process of degeneration, but that it possesses physiological functions of which secretion is probably the chief. The apparent increase in appendicitis he attributes to the frequency of constipation; the prophylaxis of constipation is therefore important as a means of preventing appendicitis.

7. Rupfle reports a case of obliterating arteriitis of the radial artery which came on soon after the patient struck his fingers against a table. The symptoms began with formication and numbness in the fingers, followed by pain extending up the arm. The radial and ulnar arteries and the first part of the brachial were obliterated. No other cause than trauma could be assigned.

10. This article deals chiefly with the large error which may occur in reckoning the color index of the erythrocytes. This error is due mostly to the great differences in the readings of the various instruments for measuring hemoglobin. The Sahli instrument, for instance, regularly registers about 20% too high; the reading 100 of the Fleischl-Miescher corresponds to 88 on the old Fleischl apparatus. An error of a million or more in the red count can easily occur with inexperienced observers.

Berliner Klinische Wochenschrift, No. 49.
Dec. 3, 1906.

1. *Sticker, A. *Tumors of Dogs Transmitted by Sexual Intercourse.*
2. Landau, T. *Primary Carcinoma of the Appendix.* (Continued article.)
3. *Lippel, A. *A New Method of Treating Eclampsia.*
4. *Polya, E. A. *The Pathogenesis of Acute Hemorrhage and Necrosis of the Pancreas.*
5. *Wolff, H. *The Pathogenesis and Treatment of Splenic Anemia of Infants.*
6. Mankiewicz, O. *Borovertin: A New Urinary Disinfectant.*

1. That sarcoma of dogs may be transmitted by sexual contact has been demonstrated by Sticker. A bitch with ulcerated sarcoma of the vagina was covered by four dogs; of these, one developed a sarcoma on the corresponding part of the penis, with metastases in the groin. Later on she was covered by three other dogs, and one of these at the end of three months showed a sarcomatous growth on the penis. These experiments support the view that malignant disease can be transmitted by contact provided that the tumor cells have a chance to penetrate the skin, and throw a new light on the usually discredited cases of contact transmission in man (cancer of the cervix in the wife, of the penis in the husband, transmission from lower to upper lip of the same individual, etc).

3. The customary treatment of eclampsia, immediate delivery and measures for the elimination of toxins, is usually successful. There remains a group of cases in which anuria continues after delivery, and which shows at autopsy a very tight capsule of the kidney, the so-called renal glaucoma. Lippel proposes for this group the operation of splitting the capsule of both kidneys and points to the fact that Edebohls has performed this operation in eclamptics three times, with recovery in all. While the Edebohl's operation is not a panacea for all varieties of nephritis, it certainly appears indicated in this group of cases of eclampsia. The writer has had no operative cases himself.

4. Polya reports important researches on acute hemorrhagic pancreatitis. The pure pancreatic secretion, as Pawlow has shown, contains no trypsin, only trypsinogen, which has no digestive action. It is only after activation with enterokinase, an intestinal secretion, that trypsin is formed. Acting on the belief that acute pancreatitis is due to self-digestion, Pòlya injected duodenal extract into the pancreas, both parenchymatously and through the duct, and produced in most of the animals (dogs) typical pancreatitis with fat necrosis and hemorrhages. The injection of duodenal contents into the duct invariably lead to pancreatitis, as did also the injection of trypsin, even in weak solutions. One dog recovered temporarily, but suffered from diarrhea, emaciation, and jaundice, the autopsy showing extreme cirrhosis of the pancreas. Experiments with enterokinase alone were failures, possibly owing to the use of a faulty preparation.

5. Wolff reports a case of splenectomy for infantile splenic anemia, with recovery. The red count was 467,000, and the condition very bad. Ten days after operation the number of red cells had risen to 2,500,000, and there was marked general improvement. A year after operation the child was active, but still anemic (2.7 millions). The author regards his case as supporting the view that infantile splenic anemia is an independent disease of the spleen, similar in many respects to Banti's disease.

Dec. 10, 1906.

1. *Lewin and Stadelmann. *Acocanthera Schimperi in Heart Disease.*
2. *Strauss, H. *Acquired Forms of Chronic Acholuric Icterus with Splenomegaly.*
3. Rothschild, A. *Stone in the Bladder Due to a Foreign Body, with Remarks on the X-ray Appearances.*
4. *Landau, T. *Primary Carcinoma of the Appendix.* (Concluded.)

1. Acocanthera is an East African tree which furnishes an arrow poison so subtle that a wound from it is rapidly fatal, even to elephants. From it is derived a glycoside,

ouabain, which is chemically identical with strophanthin, but several times more powerful. In small doses the action of acocanthera is similar to that of digitalis and quite as active. Stadelmann found it effective in some cases where digitalis was not, but in others it failed. Ouabain showed an action similar to that of digalen, but with the advantage that it is not painful in subcutaneous injection. These drugs are not yet on the market.

2. Strauss reports two cases of acquired chronic icterus with splenomegaly. The stools were colored, the urine contained urobilin but no bilirubin. Occasional attacks of pain in the hepatic region, with fever and increase of the jaundice, led Strauss to believe that an infectious cholangitis is the cause of the disease. He considers it related to Hanot's cirrhosis, from which it differs in the absence of bilirubin in the urine and the milder course. [*Cf.* abstract of Claus and Kalberlah's article, BOSTON MEDICAL AND SURGICAL JOURNAL, Feb. 21, 1907, page 255.]

4. Landau reports a case of primary cancer of the appendix, and analyzes the literature. Almost all reported instances have been discovered at operation or as an accidental finding at autopsy; the reason for this is that later, when the disease has led to death, the extension to other organs makes the recognition of the primary seat difficult. The symptoms are due entirely to the reactive inflammation about the new growth, and are those of appendicitis. These cases may be easily overlooked unless the rule be followed, that in all laparotomies, for whatever cause, the appendix is to be palpated, and if in the least diseased, removed.

Miscellany.

SLEEPING SICKNESS IN FRENCH EAST AFRICA.

THREE years ago, as the outcome of an inquiry instituted by the French Minister for the Colonies, the Inspector-General of the Medical Service of the French Colonial troops was able to map out the geographical distribution of sleeping sickness in the part of East Africa which belongs to France. We learn from the *Semaine Médicale* that he has now presented a further report, bringing the information available down to the end of 1905. In the regions before indicated as infected — Casamance, the largest part of Upper Guinea, the Hinterland of Liberia and of the Ivory Coast, Baol, Sine-Saloum and Cayor in Senegambia, Baouli, Kong and Lobi on the Ivory Coast, and the Bobo country further to the north — the disease, which nothing has been done to check, has naturally spread. In Senegal, where human trypanosomiasis had already been known to occur sporadically in Gambia, endemic foci were found in the Dakar Gorea district, and the native population of Popougine, Niaming, Joal and neighboring villages has been decimated by the disease. Moreover, sporadic cases have been observed at Podor, Tivaoune and Rufisk, which is at a distance of only 30 km. from Dakar. It is feared that a considerable part of that district is infected, and it would not be surprising if this were the case, as the tsetse flies abound there. Sleeping sickness is also prevalent in the southwestern part of the Sudan; it is uncertain whether it has existed there for some time or whether it penetrated into the country by way of Guinea — where it is rife, particularly n the Fouta region and in certain zones still earer the Sudan — or by way of Upper Gambia, where it is also endemic. On the other hand, the southwest of the Gaoua zone, on the confines of the Sudan and of the higher part of the Ivory Coast, is also infected; it is not known, however, whether the disease has been imported from Lobi or from the Bobo country, or whether it has invaded the last-named regions by spreading from the Sudan. In Loango, one of the most important ports of the French Congo, which is the starting place of caravans for Brazzaville, sleeping sickness causes great ravages; but the disease is not localized there, many villages in the Middle Congo being also contaminated. In the Ivory Coast, in addition to the Baouli and Kong foci, isolated cases have been observed in patients coming from Senegal or the Sudan. In Dahomey only a single case has been reported; it occurred at Porto Novo, the capital. But the tsetse fly is found in Dahomey, and sleeping sickness is known to have existed or to exist in the Paouignan region quite near to Abomey. It is, therefore, not unlikely that trypanosomiasis may be more or less prevalent in several parts of the interior of the country. — *British Medical Journal.*

SINGLE EXAMINING AND LICENSING STATE BOARD FOR MEDICAL PRACTITIONERS IN NEW YORK STATE.

BELIEVING that their enactment offers the best way of securing the preservation of scientific educational standards in the state, the regular profession of New York is at present making unusual efforts to secure the passage, if possible, of two bills before the Legislature, one in the Senate and one in the Assembly, which provide for the creation of a single examining and licensing State Board for Medical Practitioners. The members of the proposed board are to be appointed by the Board of Regents of the University of the State of New York, and it is specified that each member must have received the degree of Doctor of Medicine from some registered medical school and must thereafter have legally practised medicine in the state for at least five years.

At the present time there are three state boards of examiners,—the regular, the homeopathic and the eclectic,—and candidates are required to pass examinations in materia medica and therapeutics, but under the proposed single board the latter subjects will be omitted. Candidates are, however, required to have studied medicine not less than four school years, including four satisfactory courses of at least seven months each, in four different calendar years, in a medical school registered as maintaining at the time a satisfactory standard; and the subjects included in the examinations are anatomy, physiology, hygiene, sanitation, chemistry, surgery, obstetrics, gynecology, pathology (including bacteriology) and diagnosis. Any person who has fulfilled the requirements of the board may practice in whatever manner he pleases, but it will be seen that no one can be licensed to practice who has not

shown himself possessed of a satisfactory knowledge of the rudimentary elements of scientific medicine. The establishment of such a single board would put an end once for all to the attempts of sects like the osteopaths to secure state recognition. It is felt by those favoring the measure that medical laws should not be designed to bolster up schools and sects, but simply to establish a scientific standard which the quack and charlatan cannot reach. It is believed that unless a single board is made a part of the educational system, the state, if consistent, must in time grant a board to osteopaths, vitopaths, hydropaths, electropaths and every pseudo-school whose adherents clamor for it loudly enough. Resolutions urging the passage of the bills creating the single board have been recently passed by the Medical Association of the Greater City of New York, the New York County Medical Society and other bodies, and these have been sent personally to the members of the Legislature.

Correspondence.

LETTER FROM A "ROUND-THE-WORLDER" ON THE HOME STRETCH.

MEDICAL MATTERS IN JAPAN; IN CHINA; IN INDIA.

CROSSING THE ARABIAN SEA *en Route* FOR ADEN,
January 27, 1907.

Mr. Editor: I am thus far on my way "round" the world, having left Bombay, India, on Thursday, the 24th inst. I hope to arrive at Port Said, the Mediterranean end of the Suez Canal, on to-day week, and by train reach Cairo on the same day. I have spent, since my arrival at Yokohama, one month in Japan, three weeks in China and one month in India. I was greatly interested in what I saw in Japan. The Japanese are wonderful imitators and have, in the few years of their entrance into modern civilization, made marvellous progress in the arts and sciences. In medicine they have accomplished much. Their first teachers were Germans, and the instruction was that of the German school, and, therefore, good. One who visits the university, colleges and hospitals must speak in German. I was surprised to see how excellent was their work in the laboratories and in their teaching system. I was pleased to see a copy of the "International Textbook of Surgery" in the libraries. The practical work in surgery was good, and fully up to date so far as modern methods were concerned. The care of the patients in the hospitals was influenced by the modes of life of the people, and could be improved, if it were possible to have them adopt more fully the habits and dress of the white race. I had a very interesting visit to Professor Kitasato's Institute and a pleasant interview with him. As you know, he it was who isolated the "bacillus pestis," "plague germ," and his institute is maintained by the government. He has charge of the preparation of all of the "serums" used in contagious and infectious diseases throughout Japan, and he has under his direction a number of able investigators and assistants, whom he sends to various parts of the country when an epidemic of any disease occurs. When I was there the plague had appeared in Asaka, and a number had gone to fight it. He does not fully accept the "rat" theory of infection and communication, or conveyance by the "flea" to man. In the institute there were, among many animals of all kinds, two hundred horses which, after infection, provided blood from which the serums were prepared.

In China I saw some of the medical work done by missionary physicians, and that which interested me most was in the Canton hospital, formerly under the charge of Dr. Kerr, whose "stone" operations have a prominent place in the records of surgery. The record is being kept up to-day, as each week there are a number of operations for stone performed. On one day I saw two done very skillfully by the lateral method, and more cases were waiting. There were also operations on the abdomen, jaws and other parts; in truth, a list quite as full and important as in one of our hospitals. The hospital accommodations are very crude, a board bed and a blanket. For the stone cases a round hole was made in the board and the patient laid over this. They told me the Chinaman was an excellent subject for operation, not liable to shock and rarely attacked by septic conditions.

In India I spent a portion of my time in the interior visiting Agra, Delhi, Lucknow, Cawnpore, Benares and other places possessing great interest in old and new history. The interest of the former times is found in the palaces, forts, morgues, temples and tombs of the rajahs of former times, three and four hundred years ago. These structures are marvels in architectural skill and artistic combinations, richness in embellishments and harmonious relations. No one who has any appreciation of structural art can fail to be impressed with what was achieved in this direction in those days. The medical work in India is largely, if not entirely, done by the English Government which has control. There are and have been native "doctors," but their practice is and was limited. "Death is the will of God," as it happens to come to Mohammedan, Hindu, Buddhist, Parsee, and by them little is done to interfere with it. The English Government in India is doing all it can to help the four hundred million people, through civil service physicians and surgeons, and in a few centers, as Bombay, Calcutta and one or two other places, excellent scientific work is done in institutes for research. Rabies prevails largely, and a Pasteur Institute has been organized at Poona, I think, for the treatment of natives bitten by rabid dogs, jackals, etc. The antitoxin is prepared and sent to all parts of the country for use. As you know, each year many natives are killed by venomous snakes. In 1904 over twenty-one thousand perished from this cause. In Bombay the government has established a laboratory, and for some time anti-venin has been prepared and used with success. I had an opportunity to see the work of this laboratory, where there are many specimens of the venomous reptiles — cobras and vipers — which are used for the purpose of obtaining the venom and from it making the antitoxin by inoculation of the horse. I also saw two persons, one, Major Lamb, the officer in charge, and a native, who had been bitten, and their lives saved by injection of the anti-venin, with the loss, however, of a portion of a finger. In this laboratory also, under the direction of their officer of the Indian Medical Service, is prepared the plague serum, with which many are inoculated as a preventive, not curative, agent. Rats, infected with the plague and having the plague flea on them, are trapped by the thousands each day, so many that it requires three or four ox carts to bring them to the laboratory. If not dead, they are killed by chloroform, and the fleas on them, by the same agent, are simply stupefied so they can be "stripped off" and placed in a test tube where they soon revive. Each rat — a thousand in a day — may be posted and the pathological condition noted. From the buboes, cervical and inguinal, cultures are made and guinea pigs infected. The fleas are used to convey the plague by confinement in protected boxes with guinea pigs. The results obtained seem to prove conclusively, first, the rat is infected; second, the flea on the rat is infected; third, the flea getting on to a guinea pig, non-infected, conveys the plague to it. The human subject is infected in the same manner by the flea by means of the dejections, as it has been observed that while biting the flea passes from the intestines its contents which infect the wound made by its proboscis. I watched for some time the process very closely and came in contact with many fleas, and have taken all precautions to prevent myself being infected. "Plague" take him, I hear you say, for such a long epistle. And so I stop, telling you that I hope, after a visit to Constantinople and Athens, to go to Vienna, Paris, and London to live over the old days in a way.

Very sincerely yours,

J. EWING MEARS, M.D.,
Ex-President American Surgical Association.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 16, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,688	484	Quincy	6	2
Chicago	608	217	Waltham	17	6
Philadelphia	—	—	Gloucester	5	1
St. Louis	—	—	Pittsfield	9	2
Baltimore	248	66	Brookline	10	1
Cleveland	—	—	North Adams	12	3
Buffalo	—	—	Chicopee	7	3
Pittsburg	—	—	Northampton	11	1
Cincinnati	—	—	Medford	4	—
Milwaukee	—	—	Beverly	5	1
Washington	—	—	Hyde Park	5	2
Providence	—	—	Newburyport	—	—
Boston	262	56	Leominster	6	2
Worcester	57	13	Melrose	4	0
Fall River	—	—	Woburn	9	1
Cambridge	35	10	Marlborough	9	2
Lowell	41	13	Westfield	2	—
Lynn	28	8	Peabody	—	—
New Bedford	29	8	Revere	5	1
Springfield	38	6	Clinton	4	0
Lawrence	31	10	Attleboro	4	1
Somerville	12	4	Adams	3	—
Holyoke	14	8	Gardner	—	—
Brockton	—	—	Milford	4	1
Malden	11	2	Weymouth	7	—
Salem	10	3	Framingham	7	0
Chelsea	14	6	Watertown	2	0
Haverhill	22	5	Plymouth	—	—
Newton	7	2	Southbridge	4	—
Fitchburg	—	—	Wakefield	—	—
Taunton	12	1	Webster	—	—
Everett	10	—			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING FEB. 23, 1907.

N. T. MCLEAN, assistant surgeon. Discharged from treatment at the Naval Hospital, Boston, Mass., and ordered to the Navy Yard, Boston, Mass.

C. C. GRIEVE, passed assistant surgeon. Commissioned a Passed Assistant Surgeon from June 2, 1906.

C. E. RYDER, passed assistant surgeon. Commissioned a Passed Assistant Surgeon from June 26, 1906.

S. BACON, acting assistant surgeon. Ordered to the Norfolk Hospital.

J. M. MOORE, surgeon. Ordered to duty at the Naval Hospital, Norfolk, Va.

F. M. FURLONG, surgeon. Detached from duty at the Boston Hospital, and ordered to duty in connection with the fitting out of the "Vermont" and duty on board when placed in commission.

APPOINTMENT.

DR. H. P. BOWDITCH has been appointed George Higginson Professor Emeritus of Physiology in the Harvard Medical School.

SOCIETY NOTICES.

THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS. — The Third Annual Meeting of the National Association for the Study and Prevention of Tuberculosis will be held at the New Willard Hotel, Washington, D. C., May 6, 7 and 8. The organization of the sections for the meeting is as follows: Sociological Section, Mr. Paul Kennaday, New York, chairman; Mr. Christopher Easton, New York, secretary. Clinical and Climatological Section, Dr. George Dock, Ann Arbor, chairman; Dr. Joseph Walsh, Philadelphia, secretary. Pathological and Bacteriological Section, Dr. F. F. Wesbrook, Minneapolis, chairman. Surgical Section, Dr. W. S. Halsted, Baltimore, chairman; Dr. Hugh H. Young, Baltimore, secretary. Section of Tuberculosis in Children, Dr. T. M. Rotch, Boston, chairman.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. — A meeting of the society will be held in Sprague Hall, Medical Library Building, on Monday, March 4, at 8.15 P.M. Program: Diseases of the Naso-Pharynx in Infancy, Dr. J. L. Morse; Demonstration of Eggs of Common Intestinal Parasites, Dr. Franklin W. White.

DANIEL FISKE JONES, M.D., *Secretary*.
114 Marlborough St.

EXAMINATION OF CANDIDATES FOR VACANCIES IN THE MARINE-HOSPITAL SERVICE. — A board of officers will be convened to meet at the Bureau of Public Health and Marine-Hospital Service, 3 B Street, S.E., Washington, D. C., Monday, April 15, 1907, at 10 o'clock, A.M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service. Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character. The following is the usual order of the examinations: 1, physical; 2, oral; 3, written; 4, clinical. In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination of the various branches of medicine, surgery and hygiene. The oral examination includes subjects of preliminary education, history, literature, and natural sciences. The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. For further information, or for invitation to appear before the board of examiners, address "Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C."

RECENT DEATHS.

DR. SHERWOOD B. IVES, a son of the well known New York banker, Brayton Ives, died at Datil, N. M., on Feb. 16, from the effects of a pistol shot wound accidentally inflicted by himself. Dr. Ives was born in New York City and was thirty-six years of age. He took the regular preparatory course at Groton and was graduated in 1893 from Yale, where he rowed on the crew and was one of the best all-round athletes and most popular men in the university. He was graduated from the medical department of Columbia University in 1896, and afterwards served as interne in the Presbyterian Hospital. He engaged in private practice in New York for two or three years, but incipient tuberculosis developing, he went to the Adirondacks, where he became the Assistant of Dr. Trudeau at his Saranac Lake Sanitarium. Later he decided to go to New Mexico to practice, locating at Datil, where he greatly enjoyed the open air life and soon became the most popular physician in that section of the country.

DR. JAMES CLARK THOMAS, of New York, died at the Good Samaritan Hospital, in Los Angeles, Cal., on Feb. 20, in the sixty-fourth year of his age. He was graduated from Yale University in 1864 and from the College of Physicians and Surgeons, New York, in 1868. He then served as interne in Bellevue Hospital. His whole professional life was spent in New York City, where he built up a large and lucrative practice.

DR. JOSEPH O'SHEA, a well-known practitioner of Paterson, N. J., died on Feb. 20, from acute pulmonary tuberculosis, at the age of thirty-three years. He was a graduate of Seton Hall College, and received the degree of M.D. from Bellevue Hospital Medical College, New York, in 1896. During the last four years of his life he was medical inspector of the public schools of Paterson.

SAMUEL PITCHER, M.D., M.M.S.S., of Hyannis, died at Ormond, Fla., February, 1907, aged eighty-three years.

ROBERT PROVAN, M.D., M.M.S.S., died in Brookline, Feb. 23, 1907. Dr. Provan was born in New Brunswick, and after preliminary study at Fredericton, was graduated from the Harvard Medical School, and thereafter, for the greater part of forty years, lived and practised in South Boston. He was at one time a member of the Common Council; for three years president of the British Charitable Society; at one time vice-president of the Victorian Club, and was also prominent in other such associations. He was a man highly thought of in the community in which he lived.

BOOKS AND PAMPHLETS RECEIVED.

Success: The Surgical Desideratum. By A. Ernest Gallant, M.D. Reprint.

The Cervix Uteri Before, During and After Labor. By A. Ernest Gallant, M.D. Reprint.

Superstition in Teratology. With Special Reference to the Theory of Impressionism. By Edwin Taylor Shelly, M.D. Reprint.

Thirty-sixth Annual Report of the Central State Hospital of Virginia (Petersburg) for the Fiscal Year Ending Sept. 30, 1906.

Mr. Elbert Hubbard on Vaccination; A Critical Examination. Reprint.

Some Remarks on Prostatic Hypertrophy. By Charles H. Chetwood, M.D. Reprint.

Original Articles.

ON THE DIAGNOSIS OF TUMORS, WITH ESPECIAL REFERENCE TO THE EVIL RESULTS OF OVERCONFIDENCE AND DELAY.*

BY MAURICE H. RICHARDSON, M.D.,
Professor of Clinical Surgery, Harvard University.

THE frequent occurrence of diseases previously regarded as rare, soon after attention has been called to their possible existence, has been remarked by most observers. It is often said that an unusual case in practice is immediately followed by one or more similar cases. For example, a splenic leukemia, seen one day, is followed by another the next; or an extra-uterine pregnancy, operated on in the morning, is followed by another in the afternoon. Such occurrences are, of course, purely accidental. A disease accurately described for the first time seems thereby to be put immediately upon the increase; but the explanation of the fact lies, as we know, in the increased attention called to the subject, the added knowledge which makes the lesion suspected, and the careful search for the disease by the general practitioner. With the demonstration that the vermiform appendix is the cause of most symptoms in the right iliac fossa, the number of cases of appendicitis has increased beyond all conception of the early days. The changes in the pancreas owing to gallstones, and relieved by cholecystostomy and drainage, have been noted with increasing frequency. So it is with many clinical problems. The moment a question arises, conditions seem also to arise as if for the direct object of solving that question. Ten or fifteen years ago the subject of actinomycosis, for example, was brought up by Dr. C. A. Porter in connection with chronic inflammatory diseases of the lower jaw, previously treated as alveolar abscess with dead bone. This disease had hardly, in my recollection, been mentioned, and was by many of the staff — myself for one — not known even by name. Cases began immediately to be discovered, and with increasing frequency. Through the general interest excited by the studies of Dr. Wright and through the eager search made by the staff, the disease has now been demonstrated in different parts of the body. In one year I found three cases of abdominal actinomycosis, all so strongly resembling malignant disease that the diagnosis of cancer seemed the most plausible one. The possible presence of this lesion is now considered in the diagnosis of many if not most doubtful tumors, especially in connection with the alimentary tract.

The discovery of new and easily demonstrable facts has added such strength to the diagnosis of many previously obscure conditions, that they are no longer obscure. Contributions to the pathology of tumors, like the demonstration of the relations of the ray fungus to intestinal growths, or of the influence of gallstones in producing chronic inflammations resembling new growths of the pancreas, have cleared up many previously obscure questions. The etiology of tumors is better understood, or rather is a little less unknown or unsuspected. The influence which new growths exert in the very beginning of their offending, and the gross changes which they undergo in their early life history, are, as time goes by, better and better predicted and understood. The tumors which may be left with comparative safety and those which may not, whatever the pathological report may be, are within reasonably accurate recognition. Fewer errors are made previous to operation, and fewer unnecessary operations are performed.

The diagnosis of tumors is, nevertheless, uncertain, even at the present day and in the hands of the most experienced men. Many unnecessary, not to say unjustifiable, operations are performed, while many imperative ones are withheld. The decision for or against operation must depend in most cases upon the educated touch; but many tumors are so deeply seated that it is difficult, if not impossible, to feel them. In all cases the final diagnosis after exposure of the tumor depends largely upon the sense of touch. The diagnosis of inaccessible tumors depends exclusively upon the history and the general examination. Accurate demonstration necessitates the exploratory operation which in such regions as the deep epigastric is easy and safe, and which may be followed immediately by the radical operation. In other anatomical areas, the brain, for example, the exploration is itself so dangerous that the removal of the tumor does not add greatly to the risk. Indeed, the early discovery and prompt removal of a tumor from the cortex is less destructive to cerebral tissues than the laborious and extensive search for something which perhaps does not exist. But however absorbing may be our interest in the new growths of the brain, spinal cord, the pleura, pericardium, lungs and mediastinum, tumors situated in these regions do not permit much more than a shrewd guess as to their existence; much less do they permit a reasonably accurate opinion as to their nature. Such tumors are beyond the scope of this paper, in which I wish to consider mainly the common and accessible tumors.

Since reading in Atlanta in 1903 upon practically the same subject as that considered in this paper, I have been impressed more deeply than ever by its importance, for in the three years which have elapsed since then I have seen the evils which follow the overconfident diagnosis, whether of malignancy or of benignancy. Clinical records are crowded with the histories of tumors in their early and operable stages and their worse than useless treatment by "absorbents," "counter-irritants," trypsin and other newly-discovered and much-advertised "scientific" methods of sure cure. In some instances, but too few to be in the aggregate of serious moment, my operative records contain the pathologist's report of *benignancy* when the operative diagnosis read *malignancy*. Even in those cases, however, like pyloric stenosis of

* Read before the Obstetrical Society of Boston, Oct. 23, 1906.

ulcer origin, the diagnosis of malignancy which necessitated pylorectomy, removed the menace of later degeneration which a simple gastro-enterostomy would not have done. Furthermore, in disputed diagnoses the worse rather than the better prognosis — that which demands thorough removal — means the greater safety for the future.

Admitting, as we must, the failure in the treatment of malignant growths of all methods other than surgical (excepting, in the rarest instances, the x-ray in superficial epithelioma and Coley's toxins in the sarcomata), admitting also in the diagnosis the fallibility of physical evidence, and considering the suffering and death which must follow delay and palliation based upon fallible diagnoses and inefficient methods of treatment, we cannot but feel the necessity for extreme vigilance, particularly in the diagnosis of benignancy, and for the candid admission on our part, that, after all, our experience, no matter how extensive it may be, is but a frail support upon which to base a diagnosis which permits the palliative, the non-operative, the medical treatment of the doubtful tumor.

There are degrees of positiveness in diagnosis, according to the situation of the tumor, its accessibility, its perceptibility to the senses, its rate of growth, and its effect upon the general health. Positiveness depends also upon the confidence of the observer in his own powers and experience. Most errors in prognosis and treatment depend, unfortunately, upon overconfidence. One may rely upon the positiveness of hopeless inoperability more confidently than upon that of benignancy, for more errors occur in calling the malignant tumor benign than in calling the benign tumor malignant. Positiveness may be, and usually is, greater in the malignant than in the non-malignant tumor, for the signs of malignancy are plain and characteristic, whereas those of benignancy are not always either plain or characteristic.

It is easy to make a positive diagnosis of a breast tumor which presents characteristic signs to touch as well as to sight, when it is difficult to make the diagnosis positive in a tumor accessible only to touch. One may be positive in his opinion that a subcutaneous tumor is a lipoma, and find in reality a sarcoma. In a word, however, positiveness varies with the evidence, for some is positive and some is not; it varies with the observer's experience, for this is sometimes broad and sometimes limited. It varies with common sense, for some observers have this quality and some do not. Finally, positiveness based upon truth and accurate observation is an attribute which can be cultivated to high perfection.

In my experience and belief, preventable errors of all kinds in the practice of surgery, especially the gross and hard to excuse — whether of diagnosis, technique or after-treatment — occur as the result of overconfidence rather than of ignorance. There is, for instance, the blunder of leaving gauze sponges in the abdomen. When every precaution has been taken by counting the gauzes, and yet one is missing; when the gauze is sought for by looking and feeling, and by looking and feeling again and yet again, and when the count is still incorrect, then the surgeon may feel as sure as can he feel of anything depending upon human frailty, that there is no sponge left in the abdomen, but that the original count was wrong, or that a gauze has been lost elsewhere than in the abdomen. When, in the confidence of a correct count, he closes the abdomen without looking or feeling, the safety depends upon the correctness of the count, and it is then, if ever, that a gauze in the abdomen may have been overlooked. Gauzes are lost when there is no suspicion of their loss. So it is in the distressing burns by heaters; in paralyses from prolonged faulty postures; in wounds of ureters, bladder, and intestines, — these accidents occur when the possibility of their occurrence is not even considered. In the diagnosis of tumors, errors arise because their nature seems so evident, so unmistakable, that careful histories are not taken and careful examinations are not made. A lipoma, for example, is diagnosticated at a glance and a touch, and found to be — a fibro-sarcoma (vol. lxii, p. 70) or a round-celled sarcoma (vol. 28, p. 80). A breast tumor is so evidently a benign cyst that operation is not even considered, and it proves to be malignant and fatal (vol. 38, p. 30). A tumor of the tongue is diagnosticated by an expert as unmistakable syphilis, and is treated for a month as syphilis, the appearances being thought so characteristic that touch is deemed unnecessary. At the end of this time, when the case comes to the surgeon (vol. lix, p. 41) the tongue is removed and shown by the microscope to be cancerous! A tumor of the thyroid diagnosticated by the medical consultant as Graves's disease and inoperable proves to be a cyst easily and effectively removed after years of useless suffering (vol. 36, p. 75).

So on through many years of records, case after case will be found in which some one — through carelessness, overconfidence, preconceived ideas — has failed to recognize the nature of the tumor and the gravity of impending complications. This failure depends first upon the patient; secondly, upon the attending physician, and finally, upon the consultant. By the time the tumor reaches the surgeon's knife, it only too frequently is found to have passed the bounds of the operable.

Hence the fearful mortality of those new growths which are not perceived early by the patient or recognized early by the attending physician. My records are full of cases of inoperable tumors of the stomach, intestine and rectum; uterus and ovaries; tongue, tonsil and esophagus. Even in the visible, accessible and most favorable positions, tumors are sometimes overlooked, concealed or lightly diagnosticated as of no importance. But the most frequent errors in diagnosis, and the ones to which I wish to call especial attention, are those which occur in spite of one's eager desire to avoid them, — errors in diagnosis that cannot but arise when-

ever, among several observers, there is that difference of opinion which necessarily arises from the nature and situation of the growth and not from haste or overconfidence. They are met with whenever, after careful study of history and physical signs, there still remains an element of doubt.

In all tumors, but especially in those recorded as doubtful, the possibility of malignancy must not be overlooked or forgotten; hence the importance of prolonged study of history, careful and repeated examinations, and early and adequate extirpation.

In the diagnosis and treatment of tumors, the most desirable because the most beneficial proposition may be expressed, I think, as follows:

All tumors should be regarded as malignant until they are proved benign.

No tumors can be proved benign while they are still in the body.

Therefore, all tumors should, if possible, be removed.

The truth of these premises may be open to discussion; but, their truth having been proved, the conclusion is inevitable.

The present communication deals chiefly with the truth of these premises. I shall, therefore, discuss the diagnosis of tumors, and shall endeavor to show the impossibility of always making that diagnosis sure enough to justify palliative treatment. The cases which illustrate this paper are selected wholly from my own records, and chiefly the records of the past few years. The sum total of errors in diagnosis is extremely small, for the signs have been only too characteristic and too often deplorably hopeless. The object of my remarks is not, however, to show the fallibility of the general practitioner, or even the medical consultant, but of the experienced surgeon. The chief argument is that, no matter how skillful the surgeon may be, he cannot be sure that any case which he deems benign is not in reality malignant. If it is admitted that the men most experienced in the diagnosis and treatment of tumors cannot in any case absolutely exclude malignancy, then the only rational treatment of tumors which are apparently benign is to remove them when the operation is neither dangerous, disfiguring nor disabling. But before a tumor is removed by an operation which is necessarily dangerous, disfiguring and disabling, the burden of proof that the tumor is malignant, though apparently benign, is upon him who would perform the dangerous operation.

The diagnosis of the lipomata may be conceded to be the easiest of all accessible tumors. Mistakes in this group are, therefore, least liable to occur.

When a malignant growth is diagnosed as a lipoma and the patient lives in the false security of the wrong diagnosis, the results are about as disastrous as can be imagined. In the cases which follow, the history and physical examination were careful and complete. The conclusion was not, from its inaccuracy, necessarily hasty or overconfident. It was one of the possibilities in the diagnosis of all tumors.

The first case was that of a strong, young man who had a tumor at the anterior border of the left axilla, a little above the level of the nipple. I examined this carefully and found what seemed to me a lipoma. It did not have, perhaps, all the characteristics of a fatty growth, for the skin did not show the irregular dimpling on lateral and inward pressure. I advised, but did not urge, removal. Two years later this man, having relied on my diagnosis that it was not a serious matter, though not accepting my advice, came to me with his axilla infiltrated by a new growth which proved to be a round-celled sarcoma and which was practically inoperable. The only thing to do after the failure of two extensive dissections, was amputation of the whole upper extremity — an operation which the patient wisely declined. Coley apparently cured him with the toxins of erysipelas and the x-rays, and he was shown at Washington four years ago before the American Surgical Association. He has since then died with recurrence in the mediastinum.

In this case the tumor was not a characteristic lipoma, and my error may have been, perhaps, a little less inexcusable. Something suggested that it ought to be removed, but I did not urge the operation as I should have done.

"The characteristic lipoma is unmistakable," most authorities would say. Unmistakable by whom? I maintain that the characteristic lipoma is the easiest of all external tumors to recognize; but I also maintain that no surgeon, no matter how experienced he may be, can avoid sooner or later making a wrong diagnosis even in so plain and simple a growth as a lipoma; furthermore, if he must err — being human — in the lipoma, what must be the probability of his erring in the uncharacteristic, the deeply seated, the inaccessible tumor? After all, however, the error usually results from haste or overconfidence, as I have said, especially, when no doubt arises. I select my cases, therefore, from those which I know have been carefully and repeatedly examined.

Mrs. H. (vol. lxii, p. 70) presented a subcutaneous tumor of slow growth over the upper part of the left scapula. The tumor was flattened, movable and connected more or less intimately with the skin, as all lipomata near the back of the neck are. Every attachment of this tumor required cutting. Dr. Whitney reported it to be a fibro-sarcoma.

This tumor was removed by a sufficiently broad margin because of its situation and attachments, which even in the case of a lipoma are so extensive and intimate in this part of the body that they must be actually cut. Here was a tumor, having the history and appearances of an innocuous growth, in a common situation of the lipomata, with the characteristic dissection of the lipomata. The tumor was not disfiguring, and its removal seemed in a sense unnecessary. Had this patient been advised against operation, and, relying on that advice, had she let the growth alone, two or three years' delay might have

resulted, as in the previous case, in inoperability and death.

If it is easy sometimes to mistake the lipomata, what shall I say of breast tumors? In hundreds of breast tumors operated upon, even the most stupid observer must learn something of the gross appearances of cancer. Indeed, cancer of the breast in its full development is so plain that I think the diagnosis from gross appearances alone is as reliable as that from the microscope alone. It may be even more reliable, considering the possibilities of overlooking characteristic portions, the mixing up of specimens and slides, and other occasional and unavoidable mistakes.

In most cases of breast cancer the signs are so distinctive that a glance and a touch are sufficient to make a positive diagnosis. In some cases, especially the early ones, careful and repeated examinations fail to make the diagnosis positive. In some the diagnosis of malignancy cannot be made with certainty until a section is made through the tumor. In some the microscope alone will first detect the beginning evidence of malignancy. Accurate diagnosis of the doubtful, the indistinctive, breast tumor is impossible, even by the most experienced. Even if the surgeon can make a reasonably sure diagnosis of benignancy, as in the cyst or the encapsulated fibroma, he *cannot* in any case, except by the most prolonged and painstaking laboratory research, be absolutely sure that some minute focus of malignancy has not been overlooked.

These facts I can illustrate by many cases seen by many general practitioners and by many surgeons. It would seem hardly worth while to prove their truth, were it not that many, especially physicians, assume that benignancy may be definitely determined, and upon that demonstration advise against operation.

The breast tumor cannot at any age, and especially after the age of thirty, be diagnosticated as benign with an accuracy sufficient to permit indefinite delay.

In young girls malignant disease of the breast is very unusual. I have, nevertheless, seen the most malignant form of cancer at nineteen, and several cases in women under thirty.

Carcinoma of the breast is so unusual in the young, however, that its presence is especially liable to be overlooked. In a patient of nineteen the age itself may be by some relied upon to eliminate this disease in the differential diagnosis, even when cancer is strongly suspected. Cancer of the breast, like cancer elsewhere, is especially virulent in the young. Its fatal course may be run in a few months. The importance of early recognition is, therefore, particularly great. The observer must remember that the signs of breast cancer are the same at all ages, and he must be cautioned not to give these signs too little heed on the sole ground that the patient is young.

One of the common breast tumors in the young is the fibroma, encapsulated and easily removed. In consistency, in outline and in mobility, the fibroma, especially when situated in the center of the breast, resembles the carcinoma similarly situated. Enlarged lymph glands in the axilla may or may not be present, whether dependent upon the breast, tumor or not. Their existence may confirm cancer; their absence cannot exclude it. Hard tumors of the breast centrally situated should, therefore, be removed, whatever the age of the patient. If they are not as an invariable rule removed, the early detection of breast cancer in the young must be admitted to be impossible.

With increasing years the doubtful breast tumor is more and more likely to prove malignant. Hence the rule which I think should be generally followed, that all breast tumors in patients over thirty years of age should be removed.

But are breast tumors of any kind, at any age, characteristic enough to justify non-interference with them? The answer is that some are, in the hands of men of great experience; in the hands of men of small experience, they are not. In no one's hands is any breast tumor so unmistakable that fatal error *may* not occur. Indeed, the only really safe breast tumor is the one which has been removed by a sufficiently broad margin.

On the other hand, if breast tumors are, as a rule, overlooked in their earliest and least unfavorable stages, the patient is occasionally referred to the surgeon long before he can make out any tumor or other abnormal condition. The burden of responsibility is then upon his shoulders, and it is a heavy one, especially if he declines to explore the breast in the presence of any abnormal signs whatsoever, particularly in women over forty.

Many years ago I learned the lesson that pain alone justifies, if it does not demand, surgical investigation of the affected breast. Dr. Brigham of Fitchburg sent me a woman of forty whose only complaint was pain in the left breast. Dr. Brigham's diagnosis was cancer. I could feel nothing abnormal; but operated because both the patient and the physician insisted upon the operation. In the center of a large breast I found a nodule of cancer not larger than a pea. Through the insistence of Dr. Brigham, this patient was given the very best chance of permanent recovery; for it was the earliest and most favorable case upon which I have ever operated. By the perversity of things and from causes which no one understands — causes which make some unfavorable breast operations permanently successful, and some favorable tumors quickly recurrent — this patient in a comparatively short time died of a general metastasis.

This case brings up the question of pain in diseases of the breast, — an interesting and important subject, but one beyond the scope of this paper. It should be said, however, that pain is a symptom of value, both positive and negative, in cancer of the breast. Its absence means little, but its presence means much. In women over thirty persistent and unexaggerated pain may be an adequate reason for exploration, especially when the family history shows much cancer.

Before a detailed consideration is given the cases which illustrate my remarks, a word should be said as to a common source of error in diagnosis at the operation itself. That source is in the examination of the specimen, both macroscopically and microscopically. I have seen many tumors pronounced benign which, as the after-history showed, were malignant, though I recall but few pronounced malignant which were benign. The evidence of the former error, based upon recurrence or metastasis, cannot exist in the latter, because the benign tumor does not recur; and if it is pronounced malignant, it simply swells and vitiates the statistics of permanent operative recoveries in malignant disease.

That many benign tumors are diagnosticated and removed as malignant, there is no doubt. Many breasts are sacrificed which need not be sacrificed, and yet the error is on the safe side. When a tumor has the characteristic appearances of cancer, it can hardly be mistaken by the experienced operator; when it does not have these appearances, the danger of mistake is great. The border line between malignant and non-malignant breast tumors is misleading, confusing and dangerous, unless the rule be followed that all doubtful breast tumors are to be removed.

At times the neoplasm will show all the gross appearances of benignancy, of chronic mastitis with retention cysts, for example, and laboratory examination will show malignancy. Most of the errors in diagnosis arise when the characteristic evidence of either malignancy or benignancy is wanting, and when the pathologist has failed to find the malignant focus.

In 1904, at Racine, Wis., I removed a breast (vol. 49, p. 163) for what to me seemed clearly chronic mastitis with retention cysts — the intracanalicular fibroma. Both breasts were similarly affected, and the worse was selected for amputation. Professor Zeit, of Chicago, who was present at the operation, reported, immediately upon examination of a frozen section, that the disease was malignant, and that the other breast was probably the same. I should have been positive that the tumor was benign, and felt sure that Dr. Whitney would have said the same. Under the evidence of the microscope, and with the decided approval of Dr. E. C. Dudley, of Chicago, I removed the other breast. Dr. Whitney's exhaustive examination of the specimens resulted in perfect agreement with the diagnosis of Professor Zeit, which was made upon the spot — endothelioma of the breast. Here was a malignant tumor most strongly suggesting benignancy — its malignancy a matter of microscopic demonstration alone, beyond the possibility of correct deductions from gross appearances.

I admit the disquieting effects of such a case. Not only must the tumor be suspected as malignant, when every appearance indicates benignancy, but every nook and cranny, so to speak, of the growth and its anatomical environment must be illuminated and searched by the most refined methods of the laboratory expert.

In the Atlanta paper I illustrated the difficulties and responsibilities of breast tumor diagnosis by a case very much like the following which has recently completed a fatal course. That a second experience should have followed so soon after the first shows the importance of the subject and the liability to error, even when the attention has recently been called to its possibility.

The case reported at Atlanta was of a woman of twenty-two, seen in 1888 for a tumor of the right breast, which she said I advised her to let alone. In 1901 I found extensive cancer of right breast, with infiltration of the axilla. Radical operation was ineffectual in preventing early metastasis and death.

This case is, however, not quite a parallel with the following one, for the patient was very young and it is impossible to say that the malignant tumor was secondary to the benignant; or, in fact, that there was any connection between the two. In point of time, too, the cases are dissimilar. Nevertheless, who can say that removal of the tumor discovered in 1888 would not have prevented the tumor of 1901? It seems to me a fair assumption that an early operation would have made the late one unnecessary.

Mrs. F. W. L. (vol. 38, p. 30), aged thirty-six, had pain and burning in the left breast in February, 1902. Nothing abnormal could be detected.

On April 9, 1902, I found and removed a small, hard tumor in the lower and outer quadrant of the left breast. The incision was only an inch long, and the tumor the size of a large green pea. It was embedded in tissues described as those of a chronic mastitis. A small pigmented area of skin at the edge of the areola was at the same time removed. In February, 1903, she was "afraid something was growing in the breast," and in June I found a "small recurrent cyst." In December, 1904, there was unmistakable cancer of this breast, upon which I operated January 10, 1905. Dr. Whitney reported a medullary cancer with axillary infection. In May, 1906, there was no local recurrence; but her symptoms indicated a metastasis in the spinal cord. She died on December 17, 1906.

The evidence upon which my opinion of benignancy was based is lost. I can find no report from Dr. Whitney. It is fair to conclude, therefore, that my opinion was the result of gross appearances. Had the tumor been examined microscopically, its real nature might have been discovered in time for a thorough operation and permanent cure. The "moral" written in my records of this case, when I discovered unmistakable cancer, is "Don't leave a breast with a tumor in it," or "Always remove the tumor, breast and all," — a rule which I am by no means sure would not in the long run be the safest and soundest to follow.

Some breast tumors are wholly benign, but resemble somewhat malignant disease. Not long ago I pronounced malignant a tumor of the breast which Dr. Simmons demonstrated to be benign. The tumor was hard, and section showed

small yellowish spots of necrosis or fatty degeneration, so suggestive of cancer. Without the microscopic report I should have removed the breast, and I am not sure that that operation would not have been the better one.

In chronic mastitis the gross appearances are sometimes suggestive of cancer. The thickened edge of a medium-sized breast has at times a hardness, irregularity, and a "feel" which remind me strongly of cancer. The occurrence of cancer after the removal of such thickenings suggests not only that this condition may lead to cancer, but that cancer is often present, and, for some reason, undiscovered. The search for a small focus of malignant disease must indeed be a thorough one to enable the pathologist to say that none is present.

It is the easiest thing in the world to say that cancer is present in the case of the evident and well-marked tumor; it is not easy to say that cancer is absent in the case of the ill-defined and non-characteristic tumor. For these reasons, again, let it be ruled that the breast containing a tumor of obscure and uncertain nature, or even a tumor apparently innocuous, be removed, especially after the age of thirty.

I do not advise or urge, however, any such indiscriminate rule as that the breast be removed in every case of breast tumor. In spite of the instances which I bring forward, there is great safety in the ordinary diagnosis. A tumor which looks and feels benign, and which is pronounced benign by the pathologist, may be treated as benign, and the breast need not be amputated. The localized homogeneous tumor, sharply defined and not infiltrating the parts about, may be treated as benign when a section proves benignity. The ill-defined, non-homogeneous mass, without distinct localization, gradually blending with breast tissues, should be looked upon as dangerous; for it is in these cases that errors of judgment are likely to occur.

In every tumor which is regarded as innocuous, and is, therefore, left untouched, lie possibilities of malignancy. In my experience the disaster — the preventable error — of unsuspected and fatal malignancy has occurred in the cases which seemed the safest. "A tumor which looks and feels benign, and which is pronounced by the pathologist benign," as I have just said, "may be treated as benign"; but it must, nevertheless, be examined at regular and frequent intervals. Practically, the nervous tension which such repeated examinations cannot but keep alive in the patient, with the possibilities which make the examinations necessary, justifies, if it does not indicate, extirpation of even the apparently benign tumor.

A certain value may be given the diagnosis from the occurrence of tumors in both breasts. The chronic mastitis with retention cysts is usually symmetrical. I have seen cysts appear in the left breast after removal of similar cysts from the right. Errors in the diagnosis of breast tumors are, in experienced hands, unusual; but it is under unusual circumstances that the error occurs. If the surgeon relies too much on the rarity of cancer affecting both breasts, he will overlook, in the early stages at least, this unusual condition and one of his infrequent errors will occur. I recall two cases in which cancer, apparently independently, affected both breasts (vol. 46, p. 51). The age of the disease and its apparent extent were the same. In a recent case (vol. 63, p. 55) I was strongly inclined to think the tumors benign from their symmetry alone. Both breasts had nodules of cancer symmetrically situated. The gross appearances were so characteristic that I had no hesitation in making the most thorough dissections of both breasts and both axillæ. A third case has just come under observation, — a case in which both breasts are hopelessly involved.

But how much weight is it safe to give the fact that a left-breast tumor has been preceded a year or two by a right-breast tumor of similar history and appearance, proved by operation to be a chronic mastitis with retention cysts? A patient of thirty-six, in April, 1904, presented a large, elastic tumor of the right breast of six months' duration. The diagnosis was benign cyst. Operation on Aug. 30, 1904 (vol. 49, p. 19), showed "glandular hyperplasia with cystic dilatations" (W. F. W.). In 1905, while I was in Europe, this patient discovered a tumor in the left breast, and was advised by my assistant to have an immediate operation. I found an elastic, fluctuating tumor like the one previously removed. I calmed the patient's fears and assured her that the tumor had been practically proven benign by the experience with the other breast. In March, 1906, the tumor was smaller; in July, 1906, it was imperceptible.

In discussing at length the possibilities of error in external and easily examined tumors, it seems evident that errors in the internal and more or less inaccessible regions are much more easily and unavoidably made. Furthermore, in other portions of the female generative tract, especially in the uterus, tumors in extent, history and character are not dissimilar. Uterine hypertrophies, hyperplasias, fibromata, sarcomata and carcinomata, like similar conditions in the breast, must in every case be considered. Changes of the breast due to pregnancy are worthy of consideration, just as possibilities of pregnancy must always be borne in mind in uterine and other pelvic tumors.

Now if the breast tumor of malignancy cannot always be detected with certainty, what of the uterine, or the ovarian? And if tumors may be overlooked or mistaken, which can be felt by bimanual palpation as well as uterine and ovarian can be felt, what of the inaccessible tumors of the deep epigastrium? Is not the necessity for exploration, shown in breast cases to be great, immeasurably greater in the deeply-seated, inaccessible and manifoldly more lethal tumors of the abdomen?

Cases in abundance are at hand in my records to illustrate all the statements made in this paper. Time permits the selection of but few.

The difficulties of diagnosis are increased in tumors of the internal organs, as I say, by their inaccessibility, and yet I am impressed every day by the prevailing accuracy. Take such a tumor as cancer of the esophagus. The very existence of stricture after middle life points almost unmistakably to malignant disease. So in gastric disease emaciation with vomiting almost always means cancer, while any perceptible tumor at or near the stomach with these symptoms makes the diagnosis almost unerring. Frequent yeasty stools with paroxysmal pain, intestinal gurgling and emaciation suggest intestinal cancer so strongly that a diagnosis based upon these symptoms is almost invariably correct. Painless jaundice, persistent and depressing with loss of weight, points directly to pancreatic cancer.

But it is not the diagnosis of these advanced almost self-evident diseases which I am considering. It is rather the perceptible and operable tumor as yet unbranded as inoperable. I mean the perceptible esophageal or pharyngeal tumor (very rare, it is true) long before deglutition is interfered with; the suspected gastric disease in the earliest stages; the intestinal tumor which can be felt before obstruction exists. In the abdomen generally it is in the tumor of doubtful nature with few symptoms that operation has chance of permanent relief, — the tumor of the right upper quadrant, the gall bladder, kidney or pylorus; of the left, the spleen or kidney; of the pelvis, the uterus or the ovaries.

Some regions are so commonly the seat of malignant growths that the region itself may add the decisive evidence in favor of extirpation. The tongue, pylorus and esophagus are included in this group. Indeed, the whole alimentary tract is the seat of malignant so much more frequently than of benign growths that the general rule of universal extirpation, when possible, is applicable. One would find it hard to collect from his records a half dozen benign neoplasms of the whole alimentary tract, from the lip to the anus. When tumors do occur in these regions, however, it must be remembered that they are not necessarily malignant, however prevailing malignancy may be. The surgeon must nevertheless be especially careful and sure of his diagnosis before he advises non-intervention in tumors which, from their situation alone, are likely to be malignant.

In 1897 (vol. 24, p. 155) I removed from the pharynx of a man of forty-six an encapsulated tumor of five years' duration. The tumor involved the mucous membrane, and its removal opened the pharynx. The disease was pronounced metastatic adeno-carcinoma. I declined to accept this report; and repeated examinations and study finally showed the tumor to be in reality a supernumerary thyroid, a laboratory diagnosis which agreed fully with the clinical, as shown by the continuous good health of the patient to this day. That difficulty in deglutition, even at middle or advanced life, does not necessarily mean cancer is shown by three successful operations for esophageal diverticulum at the ages of fifty-three, fifty-four and seventy-eight.

In gastric surgery I have never found any neoplasm that was not malignant. The inflammatory infiltration of chronic ulcer sometimes suggests a malignant neoplasm, and the possibility of such benign conditions should not be forgotten in the diagnosis of pyloric tumors. Even with the tumor in the hand the surgeon may be mistaken. In one instance I removed a pylorus which had the feel of malignancy. The pathologist reported the tumor to be the inflammatory thickening of a chronic gastric ulcer. In this case Dr. Joslin had before operation made a correct diagnosis. The demonstration of benignancy in this case has had the salutary effect of making every diagnosis, however positive, whether of a virulent or of an innocuous neoplasm, open to some doubt. This experience, though very disquieting, has stimulated me to the most careful examination and diagnosis at the exploration itself.

Two interesting and unusual intussusceptions have come to my notice at an interval of thirteen years (1892–1905). Both were caused by an intestinal lipoma of the inner surface of the caput ceci, which, caught in the peristalsis of the ascending colon, was drawn forward — ileo-cecal valve and all — into the transverse colon! In the first case the intussusception symptoms were first noticed, and the tumor was discovered, at the operation; in the second, the tumor was detected in the beginning, some weeks before the operation. I failed, however, to interpret it correctly. Later an intussusception took place, and upon this Dr. Mixter operated successfully. Tumors of the ileo-cecal region must be scanned carefully, for in these cases mistakes in diagnosis are common; many a chronic appendicitis has been abandoned as hopeless malignant disease, and many a malignant tumor has been operated upon as chronic appendicitis.

The harm of regarding malignant tumors as benign is vastly greater than that of treating benign tumors as malignant. There are worse evils than those of an unnecessary operation, no matter what may, in a single case, happen. Of the real deplorable calamities of surgery there is none greater in the aggregate than the palliative, let-alone, or even the half-hearted treatment of malignant disease. True, a small percentage of explorations prove unnecessary; a small percentage may prove useless; a small number may show inadequate study or prove careless deductions; a small number may increase suffering or cause death; and yet the sum total of good accomplished would be much greater in carrying out a policy of universal and indiscriminate surgical intervention in the treatment of doubtful tumors, than in a policy of universal palliation. Indeed, were all tumors, of whatever nature and wherever situated, thoroughly investigated with a view to their complete extirpation, and were extirpation attempted in all cases, except those conspicuously inoperable, better results would follow, on the whole, than from the policy of non-

intervention, except in the light of the most unmistakable indications.

In other words, is not human fallibility, even under the most favorable circumstances, so great that the evils of always relying upon a diagnosis of benignancy are greater than the evils of always questioning that diagnosis? Are not the suffering and death following the non-operative treatment of neoplasms diagnosticated as innocuous vastly greater than those of the operation?

It must, however, be remembered that there are other evils than those of malignancy in the presence of tumors, and other indications for their removal than those of life and death — such as pressure, hemorrhage, pain, weight, with such accidental complications as torsion of pedicles, necrosis, infections, and the like. These things may in doubtful cases add the deciding influence in favor of operation. Indeed, the evidence upon which I base the indications for operation in many cases does not concern in the least the question of benignancy and malignancy, but, as in the case of uterine fibroids, rather questions of weight, size, pressure, hemorrhage, rapid growth and pain. These indications, however, result in operations which demonstrate, far more frequently than I used to think possible and more than is usually admitted, the existence of unsuspected malignant disease, more particularly in the female pelvis.

In malignant tumors generally, curability by extirpation is in proportion to early detection. The best results of surgery are therefore to be found in those areas of the body which are visible, often felt of, or continually brought into external and perceptible use, and in which, therefore, abnormal conditions are easily detected or at least suspected. Curability is influenced, secondly, by the nature of the organ affected; thirdly, by the environment, affecting possible thoroughness of extirpation and width of margin; and, finally, by the nature of the tumor itself.

In some cases the most important element is the malignancy itself, which may be so great that early discovery, resistant tissues, and early extirpation are unavailing. Such are the melanotic sarcomata, which often cause internal metastases before their malignancy is even suspected. Sometimes the malignancy is such that extirpation even atthe ve ry beginning is inadequate for cure. In cancer of the tongue — extensively dissected within a month of its inception — I have seen the whole course run in a few weeks (vol. 35, p. 135). The tongue is so fertile a field for the growth and spread of cancer that nothing is effectual for even the smallest and most circumscribed growth, but total extirpation of the tongue.

In another prominent facial area the disease may, from its situation, become too far advanced for extirpation before attention is called to it. Hence malignant disease of the upper jaw is almost invariably recurrent and fatal even after the most thorough extirpation. I should place this region at perhaps the head of the line of downright discouraging situations for the surgical treatment of malignant disease, as the great bony sinuses of the ethmoid and sphenoid are usually invaded even to the basilar process, before pressure has let loose the tumor behind the eye, into the cheek, or through the hard palate — in which places it becomes, of course, immediately perceptible.

Cancer of the lip is by nature no more curable, I believe, than cancer of the pylorus, the cervix uteri, or the anus. It is taken early because its presence cannot be ignored. When taken late, cancer of the lip is as unfavorable and fatal as cancer of the rectum and pylorus.

The early discovery of tumors in our patients is, unfortunately, not our task; but it is for us to make the correct definition of them when once they are brought to our attention. We can recommend, when practicable, that the common indications of trouble be not disregarded; that unnatural discharges from the vagina be investigated rather than regarded as the "turn of life"; that bloody stools be not lightly looked upon as piles; that persistent gastric symptoms be not dismissed as dyspepsia; that abdominal enlargements be not always treated as an increase of fat; and, finally, that all bunches be brought at once to the attention of the physician. Once shown to the physician, the tumor is within reach of argument, at least, if not of surgical intervention; and upon the physician then rests the responsibility of diagnosis and advice.

In the female pelvis the errors of diagnosis are more prolific and deplorable than in any other region in the male or female. In illustration of this statement I have many cases at hand. The first source of error and delay is in the diagnosis of pelvic tumors. The diagnosis is in many cases deplorably uncertain, especially the diagnosis between the fibroid and the solid or semi-solid ovarian tumor.

The correct diagnosis of the great majority of pelvic tumors is comparatively easy. The correct diagnosis of some pelvic tumors is beyond human powers, as I have seen them exercised. The mistakes made in a hundred consecutive cases will be very small; but we are at an age when the margin of error, though necessarily narrow, is much broader than we like to admit, or than we hope will in the future prevail. To narrow still further that margin we must, first of all, admit our fallibility and uncertainty.

Were it not that the commonest source of error is the malignant ovarian tumor, the importance of exploring every doubtful case would not be so great. Were it not that many a uterine hemorrhage is dependent upon concealed cancer of the uterine body, it would not be so important to operate upon what seems to be a simple submucous fibroid or a uterine polyp. Were it not for the frequent occurrence of cancer of the cervix, it would not be necessary to regard every doubtful cervix as the probable beginning of malignant disease.

The supposed uterine fibroid often proves to be a solid or semi-solid ovarian tumor, wedged upon the uterus so intimately that it seems a part of it.

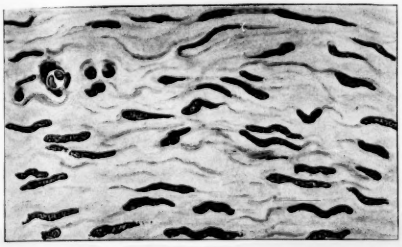


FIG. 3. New connective tissue two weeks old arising by proliferation from the dense fascia. Note the dense character of the tissue, the marked intercellular fibrillæ and the flattened cells.

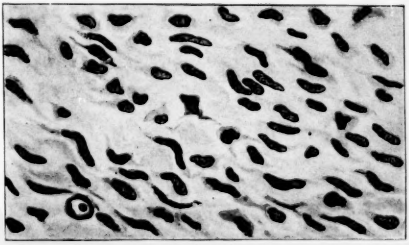


FIG. 4. New connective tissue two weeks old arising by proliferation from the intermuscular connective tissue. Note the oval and polygonal form of the cells.

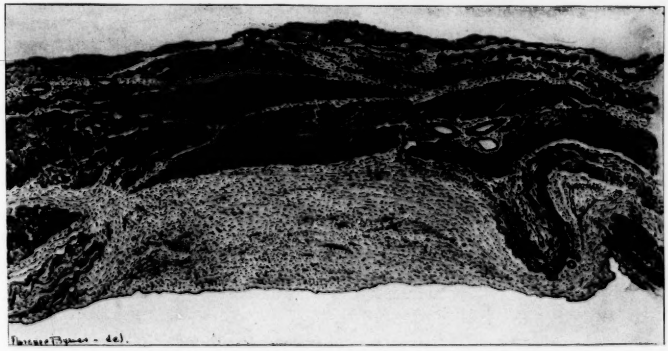


FIG. 5. Incision through the abdominal wall closed with through-and-through sutures without bruising the edges of the wound. Note the wide separation of the ends of the layers of fascia and the absence of degenerating muscle bundles.

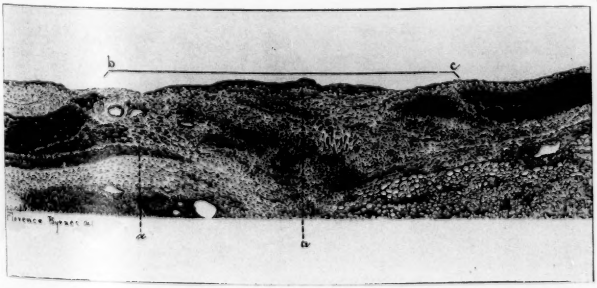


FIG. 6. Incision through the abdominal wall two weeks old closed with through-and-through sutures with bruising of the edges of the wound. Note the extent of the degeneration extending from the line of the incision *a* to *b* and *c*.



FIG. 7. High power drawing to show the degeneration of the muscle fibers in Fig. 6 at the point *x*.

The touch is the same as that of the fibroid; the cervix moves in bimanual palpation; the general impression is in every way the same. Examination under ether gives the same results. The uterine sound shows a normal depth, and proves no enlargement of the uterine body — a fact consistent with subperitoneal fibroids. Exploration shows double dermoid cysts (vol. 62, p. 159). A child of sixteen has evidently a large ovarian cyst (vol. lxi, p. 180) which proves to be malignant at its base and everywhere infiltrating. A woman of forty-nine (vol. 63, p. 105) has a uterine tumor which is correctly diagnosticated as uterine fibroid, but which under anesthesia proves so fluctuating as to raise the question of pregnancy; which, held in both hands, cannot be differentiated from a pregnant uterus; which proves to be, as the office examination seemed to show, a soft uterine fibroid. The most experienced expert in obstetrical practice is unable to rule out pregnancy.

A woman of forty-nine (vol. lvii, p. 126) has under intelligent observation for several years a multiple uterine fibroid, which proves on extirpation to be large round-celled sarcoma (Dr. W. F. Whitney) and to which the patient succumbs by extensive metastasis.

A woman of fifty-four has persistently recurring uterine flow (vol. 53, p. 119), to the investigation of which the attending physician is opposed as absolutely unnecessary, curettement having been done without ether. Thorough investigation shows adenocarcinoma of the uterine body in its very beginning. Vaginal hysterectomy has undoubtedly extirpated the neoplasm for good.

In a woman of thirty (vol. 63, p. 101) the evidence of malignancy was apparently incontrovertible. Curettage and examination of the scrapings by Dr. W. F. Whitney had shown malignant adenoma. In this case the patient's condition and age excited a doubt in my mind; I was unwilling to extirpate the uterus without further study. I therefore myself curetted, and sent, independently, the scrapings to Dr. Whitney, who pronounced them normal mucosa. There is in this case somewhere an error which must be cleared up before sacrificing the uterus of a young wife who desires, above all things, children.

That errors other than those of observation must be taken into account, Dr. Whitney himself would be first to admit. In a recent case (vol. 62, p. 131) of tumor of the upper jaw Dr. Whitney reported that the growth did not look in general malignant. The tumor was so evidently sarcomatous, malignant, hopeless, that Drs. Homans and Garland agreed with me in abandoning all attempts at removing the masses from the ethmoid and sphenoid sinuses. There was here some error either of misplacement, substitution, or actual loss of the specimen — errors which must always be taken into account — for the disease is now unmistakably malignant.

Whatever the future may bring forth in the treatment of malignant disease, the past has given us at best a very discouraging prognosis, even with the best and most thorough surgical treatment. I cannot but think, however, that even with present methods the outlook is much less discouraging than it has been. We hear more of the unsuccessful than of the successful cases. Many of us, for one reason or another, have not followed up our cases. The things which, I think, are tending toward better results are the wide dissemination among the laymen of the importance of referring all bunches to the physician, the realization on the part of the physician that neoplasms are not to be lightly dismissed with a word of encouragement to apprehensive patients; and finally, the admission on the part of the surgeon that his diagnosis is fallible.

These things tend to bring all neoplasms early to the surgeon. Let him look upon every neoplasm, no matter how innocent it may appear, as a possible nidus of malignancy, and let him treat it on the principle that it is malignant until proved benign; and finally, let him, in his methods of extirpation, whatever his belief may be, act at least upon the theory that malignant disease is in the beginning a local affection.

The failure of the patient to consult the physician early; the delay of the physician to recommend the surgeon; the surgeon's late recognition of malignancy; the surgeon's half-hearted operation, — these sources of failure will be, to some extent at least, done away with. Instead there will be early resort to the knife, with a faith on the part of the operator that the broadest practicable dissection of a neoplasm means total extirpation of the disease and permanent cure.

Hopeful as we all are of an easy and effectual destruction of malignant disease without resort to surgery, I for one do not believe that so great a boon to humanity is in store for us. I have seen too many dismal failures follow loudly heralded methods of cure, whether of tubercular or of malignant disease. Not that there may not be made at any time some discovery the wonders of which will surpass the imagination, — like the x-ray, for example, — but in our hopelessness of such a splendid achievement we must not lose faith in our present methods, which, uncertain and discouraging as they are, have, I believe, possibilities of brilliant success.

OBSERVATIONS ON EXPERIMENTAL INCISIONS THROUGH THE ABDOMINAL WALL OF CATS.

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This study of experimental incisions through the abdominal wall of cats has been carried out in the hope that by emphasizing certain histological changes which occur in the process of repair definite and positive reasons may be given why one method of closure of human abdominal wounds practically is to be preferred to another.

The methods which have been proposed and used in the closure of incisions through the abdominal wall are almost without number.

Putting aside technical differences these methods may be divided into two groups — closure *en masse* by through-and-through sutures including the skin, fasciæ, muscle and peritoneum, or closure in layers with careful approximation of fascia to fascia. Some of the modifications of these main types will be discussed later.

Much has been written from a clinical standpoint in support and in condemnation of each method.

Clinical results are the final test by which a surgical procedure must be judged, but as is well recognized the interpretation of such results not infrequently may be materially influenced by the personal view point of the observer. The skill of the individual operator, the general and local condition of the patient, the relative degree of absolute asepsis and hemostasis are all factors which effect the process of healing, though the wound may be said clinically to unite *per primam*. The amount of strain exerted on the scar after the operation is also an important factor in the end result. Therefore it may fairly be said, I think, that the clinical results from different methods of closure of human abdominal wounds are subject to such modifying influences that the interpretation of the success of the different methods is most difficult, and conclusions drawn from them may be misleading.

This much has been said in introduction in order to explain the various conflicting opinions and conclusions regarding the results of the closure of abdominal incisions by different methods which have been published by different surgeons.

In the following experiments only wounds which healed by first intention were examined, and any deduction which may be drawn applies, therefore, only to clinical wounds uniting *per primam*. Thus asepsis and proper rest during the process of repair are taken for granted.

The histological study of experimental wounds has established certain fundamental facts which are relevant to this problem. These facts are as follows:[1]

In every wound the immediate result of the injury is the destruction of tissue. This destruction of tissue is followed immediately by the formation of exudation at the point of injury. In aseptic wounds the amount of exudate is proportional to the amount of injury.

The space between the edges of the wound is rapidly filled with an exudate composed of leucocytes, serum and fibrin, with some red blood corpuscles, the number of the latter depending chiefly on the amount of hemorrhage. Therefore, the greater the defect or the greater the amount of exudate the more space there is to be filled by granulation tissue, which in turn must be organized and changed into connective tissue.

The adjacent blood vessels are dilated and the exudate extends laterally for a considerable distance into the adjacent tissues beyond the line of the incision. It follows, then, that in the process of repair the new scar tissue extends also for a considerable distance laterally from the line of incision.

The weight-bearing part of the scar in wounds of the abdominal wall arises practically entirely from the connective tissue. This connective tissue arises by proliferation from two main sources, — the fascia and the intermuscular connective tissue fibers. The connective tissue formed by proliferation from the fascia has in a general way the same characteristic as that tissue arising from the peritendineum. The proliferation of new tissue from the fascia is very rapid and the blood vessels disappear early. Even the young connective tissue is dense, the intercellular fibrillæ are marked and the cells early become flattened. That formed from the intermuscular fibers is relatively slow in proliferation, the young cells retain an oval or polygonal form longer, and the rich granulation tissue is slow to disappear.

Accepting these general principles and applying them to the wounds in question, it is essential, then, that in order to obtain the most favorable theoretical results, that there be careful approximation of the layers of fasciæ and that there be as little injury to the tissue as possible, thereby keeping at a minimum the amount of exudate and infiltration.

For the purpose of histological study it is much easier to follow the line of incision and to interpret the findings where a single muscle with distinct layers of fascia is involved. Therefore, in these experimental incisions, incisions about two inches long were made as a routine through the belly, of the rectus muscle parallel with the fibers. Large cats were the animals used. Ether was used as an anesthetic and the animals were killed painlessly. The surgical technique was as carefully guarded as in operations on the human being. No wound was studied which did not unite by first intention. The time of examination was two and four weeks after the operation. In some animals the wounds were

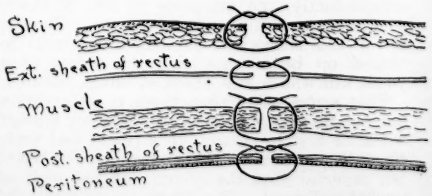


FIG. 1. Diagrammatic. To represent an incision through the abdominal wall closed with careful approximation of each layer.

closed *en masse* with through-and-through sutures of silkworm gut; in others in layers with absorbable and non-absorbable material with careful approximation of the fasciæ. In another series the wounds were closed in layers overlapping the external rectus fascia. Also in certain other wounds certain combinations of the two methods were tried, such as the placing of deep sutures of silkworm gut with suture of the fasciæ in layers, or the combination of through-and-through,

[1] Dr. Nichols: Syllabus of Surgical Pathology.

silkworm gut sutures with a deep buried stitch including all the layers except the skin. The abdominal wall of a cat is relatively so thin that this combination of suture in layers with a through-and-through suture, designed primarily to prevent the accumulation of fluid in thick abdominal walls, had really no marked effect in the process of repair.

If an incision of the abdominal wall, closed in layers, be represented diagrammatically by Fig. 1, the tendency of the sutures placed *en masse* was to allow an arrangement which may be represented by Fig. 2.

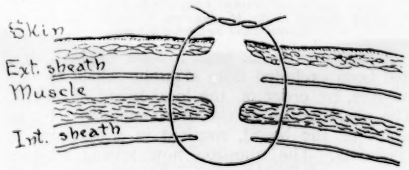


Fig. 2. Diagrammatic. To represent an incision through the abdominal wall closed *en masse*. Note the retraction of the end of the layers of fascia.

That is, the external and internal layers of the rectus sheath tended to retract, and although the muscle bundles were approximated the essentially strong tissue arising from the fascia had to fill up an unnecessarily big defect, thereby increasing and weakening the scar, and at the same time prolonging the process of repair; or the arrangement of the layers was so confused that it was impossible to follow out any definite layers in the process of repair. That is, the new connective tissue of the intermuscular fibers blended in a mass with that derived from the dense fascia. Exceptionally, the layers of fascia had not retracted and the edges were held in apposition with the suture *en masse*, and the process of repair was as satisfactory as theoretically could be desired.

Suture in layers gave universally a more satisfactory and stronger looking wound histologically. The strong fibrillar connective tissue derived from the fascia on the one side blended with a like layer from the opposite side, giving a dense scar which at two weeks was, from histological appearances, as strong or stronger than the new tissue arising from the intermuscular bundles at four weeks. This difference between the new connective tissue formed by proliferation of the fascia and that formed by proliferation from the intermuscular fibers may be seen by comparing Figs. 3 and 4.

The strength of the scar resulting from these two methods of suture was tested by an actual pull. The wounds sutured in layers were the stronger at two weeks, but so many modifying influences came into consideration that these results could be considered only as supporting the general impression derived from the histological picture and could not fairly be interpreted in actual pounds.

The omentum was adherent to an equal degree in both methods of closure.

The startling effect of trauma is graphically illustrated by comparing Figs. 5 and 6. In Fig. 5 the incision was closed with through-and-through sutures of silkworm gut without any trauma whatever, except that necessary in making the incision and placing the sutures. The muscle on either side of the incision will be seen to show practically no infiltration, with small round cells or degeneration of the muscle fiber.

Fig. 6 shows the result of trauma of the edges of the wound. This trauma was not severe or lacerating, but such as might readily be sustained by any abdominal wall during the course of an operation in which hemostats were applied carelessly and forcible retraction was used.

The infiltration extends several centimeters to either side of the line of incision. As is shown in Fig. 7, the muscle bundles far away from the line of incision are degenerating at the end of two weeks. This degeneration beyond the line of incision means, of course, an unnecessarily wide extent of scar tissue, and as scar tissue is weaker than the normal a weak abdominal wound. These wounds which had been bruised by violent manipulation were pulled apart with much less force than that required to rupture those closed with through-and-through sutures, or in layers in which care had been taken to prevent injury to the edge of the wound.

Relative to the overlapping of the layers of fascia it was demonstrated that these overlapped layers persisted and preserved their identity at the end of four weeks; that is, the layers of dense fascia could be followed in the microscopic section, and they had not blended in the mass of newly formed scar tissue.

With this overlapping technique, accurate closure of the dead space is assured as the overlap takes up any possible slack in the fascia, thereby bringing the muscles into close apposition. It also affords a greater surface for the strong fibrillar connective tissue and theoretically should give the strongest possible union between the layers of fascia.

A study of specimens in which the incision has been made at right angles to the muscle fibers demonstrated the fact that with accurate approximation of the fascia and with supporting suture to prevent the retraction of the muscle the union was as satisfactory histologically as in the cases in which the muscle fibers had been split.

It was not possible to obtain a satisfactory histological specimen from an incision in which the so-called gridiron or muscle-splitting operation of McBurney had been done, because the microscopical section would not cover the lines of the various muscle incisions. Therefore, any opinion regarding this procedure must be based on purely theoretical grounds. In order to make the inisision and control the pull of the various muscle planes the force used must of necessity be greater than with the simple straight incision. Having seen the effect of trauma on the muscle adjacent to the line of incision, it is impossible on histological grounds to think of the final

repair in this gridiron incision as being anything else than a plug of scar tissue of greater or less extent, in the center of the wound, provided the edges of the muscles have been roughly handled. This may be represented diagrammatically by Fig. 8.

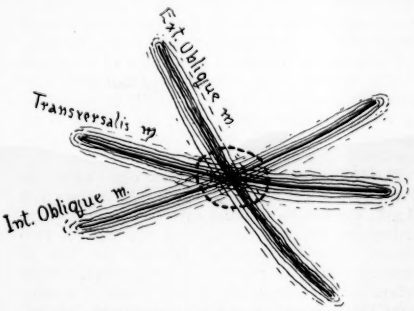


FIG. 8. Diagrammatic. The heavy lines represent the incisions through the abdominal muscles in the muscle-splitting operation. The lighter lines represent the extent of the degeneration of the muscles after rough handling. The dotted circle represents the resulting plug of scar tissue.

Imperfect sterilization of suture material used in buried stitches has been one of the chief reasons advanced for the condemnation of the layer suture, but with the improved methods for the preparation of absorbable material, this does not seem longer to be a valid objection. As was stated in the beginning, practical results must decide finally the merit of any surgical technique, and the exigencies of the individual case may warrant any modification of a technical procedure.

Judged from a histological study the suture in layers is more desirable than the suture *en masse*, because in this way in the process of repair the strong fibrillar tissue arising by proliferation from the fascia unites with tissue of its own kind thereby increasing the strength of the scar and decreasing the time necessary for repair. The well-known and very commonly used method of closing the abdominal incision with suture of the fascia in layers, and with a deep supporting stitch meets this theoretical requirement of careful approximation of layers and also the practical requirement of strength and obliteration as far as possible of all dead space. This method is represented diagrammatically by Fig. 9.

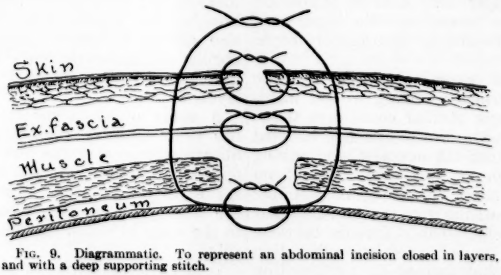


FIG. 9. Diagrammatic. To represent an abdominal incision closed in layers, and with a deep supporting stitch.

Violent manipulation of the edges of an abdominal incision should be avoided with the same care as has been recognized as essential to good results in the handling of the intestines or stomach.

ON THE PROPER INSPECTION OF IMMIGRANTS AND SCHOOL CHILDREN IN REGARD TO THE OCCURRENCE OF TRACHOMA.

BY HASKET DERBY, M.D.,
Consulting Surgeon to the Massachusetts Charitable Eye and Ear Infirmary and the Carney Hospital.

A GIRL of fifteen, from a New England city, had been excluded from a public school for five months, by order of the local board of health. The examination of the eyes, conducted by an agent of the board, resulted in a diagnosis of trachoma. The question now arising whether she were sufficiently recovered to return to school without injury to the other scholars, she came to Boston to consult a colleague. He found a normal state of things, decided that she might safely return, and sent her to me for confirmation of his diagnosis.

I entirely agreed with him, and added to the report a clause that the present absolutely normal condition of the eyes precluded the existence of a trachoma extending over five months. In other words that the diagnosis had been a mistaken one, and the child forced to pass the five months in entirely unnecessary idleness.

Several similar cases have recently occurred in my own practice, one being that of a working girl who had been denied an opportunity of earning her living on the ground that she had trachoma, the diagnosis being in this case made by a physician attached to a general hospital. Both eyes were entirely normal, had undergone no organic change, showed no trace of disease, and had evidently never been the seat of granular conjunctivitis. She at once resumed work.

A colleague, well versed in ophthalmic surgery, sends me the following:

"In reply to your question concerning trachoma in immigrants, I would say that on April 9, 1902, I was asked by a medical friend to see a

Swedish immigrant named Per Person, then detained on the steamship *New England*, (now the *Romanic*) on the ground that he had trachoma, or at all events a disease of the eye that was contagious. I could find no evidence of anything but a chronic catarrh and blepharadenitis, which the patient stated he had suffered from ever since childhood. There was a very small amount of mucus in the conjunctival sac. I pronounced the case *not* contagious, and this opinion was confirmed the next day by negative cultures, two in serum and one in agar.

"Notwithstanding all this, the man was deported, although he was a most desirable type of immigrant. He came over in the second cabin, and had plenty of money and was well dressed." Signed, HENRY W. KILBURN.

These diagnoses had evidently been made in perfect good faith by respectable and conscientious physicians, not specialists. Such occurrences argue ignorance of the nature and appearances of trachomatous affections. The disease is in itself so dangerous from its contagiousness,so chronic and wearisome, entails in many instances such serious and permanent organic changes, and demands such energetic treatment as to be a menace to the community. It has of late years justly been made a subject of legal enactment. Immigrants laboring under it are most properly excluded from the country, and natives who acquire it rightly segregated. But in the interest of the state as well as of the individual the medical examiner should be competent and his diagnosis based on assured facts. Reference to the above instances shows that this is not always the case.

A brief recapitulation of the distinctive characteristics of trachoma, as well as a reference to the diseases with which it is most likely to be confounded, may not, therefore, be amiss at the present time. It is a task that calls for no originality on the part of the writer, although it may be aided by a somewhat lengthy experience in the examination and treatment of such cases. It may be premised that "granular conjunctivitis," as the disease is properly entitled, was once far more frequently met than at the present time. In the writer's student days the great clinics of European capitals were thronged with these patients. In some they were so numerous that they were collected in a room by themselves and let in before the surgeon at a certain hour and together. Forty years ago at the Eye Infirmary in this city they formed a third of our practice. The blackened left thumb nail of the oculist formed a brand of Cain, and caused him to be recognized by his colleagues, both at home and abroad. Thanks to modern science and vastly superior treatment the percentage of this disease has greatly waned.

It is relatively seldom that the government officials, looking through a horde of immigrants, will meet with a case of fresh trachoma. It is the chronic type that arrests the attention. By one accustomed to dealing with diseases of the eye the affection is instantly recognized and requires no minute examination. The eyelids have lost their normal shape, the curvature is excessive. The free edge turns in and the lashes, irregularly distributed, touch the cornea and prolong a state of chronic irritation. The upper part of the cornea, possibly its entire surface, is roughened and opaque, often vascular. The upper lid, everted with difficulty, is studded either with active granulations, or if the case be a very chronic one with cicatricial tissue. About the diagnosis there can be no question.

The appearances in an early stage, before cicatrization has had time to occur, are very different. Here the lids have as yet undergone no change of form, the external swelling is slight, the secretion moderate. The cornea may be perfectly clear. But on everting the upper lid the true nature of the affection is at once manifested. Our attention must be directed to the fold of transmission, the point where the conjunctiva passes from the bulb to the lid. Here, especially on the nasal side, we see the irregular distribution of granules that give the name to the disease. They are of a firm consistence, differing in size, distribution and height. On other portions of the lid we recognize the characteristic patches of yellow, jelly-like exudation, lying deep in its substance.

We see, therefore, how the classical definition of Arlt applies to both the acute and the chronic cases: "The trachomatous inflammation of the conjunctiva is characterized by the deposit of a jelly-like exudation in the form of isolated, independent grains or prominences, not only under the epithelium of the conjunctiva of the lids and (when developed to a higher point) of the eyeball itself, but also in the parenchyma of the conjunctiva and in the deeper tissues (cartilage and cellular substance) and by causing the contraction of the parts infiltrated."

This in brief is trachoma or granular conjunctivitis, a knowledge of which belongs to the very rudiments of ophthalmology. It almost seems proper to apologize for introducing so hackneyed a subject. But that in these days a certain amount of ignorance in regard to it does exist has been already shown.

In the vast majority of instances this disease affects the poor, those who live amid unfavorable surroundings and are unwilling or unable to take proper care of their persons. It is conveyed from one subject to another by direct contact with the secretion, which is virulently contagious. Among other methods of transmission among ourselves the roller towel, set in public places for common use, plays an important part. Appointed on the Examining Committee of the Boston Public Library some years ago, the writer observed roller towels in the public lavatory and ascertained that they were changed four times a day. He ineffectually called the attention of the trustees to this matter, the warning was disregarded. The same state of things exists to-day.

There is an affection of the conjunctiva entitled follicular conjunctivitis, that offers a few

points of resemblance to the granular. It may be well to briefly dwell on the means of distinguishing the one from the other.

In the follicular form of the disease there is conjunctival catarrh, combined with the development of "bodies projecting over the surface of the membrane. They are gray, or else of a whitish red, round or oval and arranged in rows. They are chiefly to be met with in the *lower* fold of transmission, and on the conclusion of the process disappear, leaving no trace behind."

This description is taken from Saemisch. From it will be seen that the location of the granules is different from that in trachoma, and that they are followed by no cicatrization. With a knowledge of these facts it is hardly possible to confound the two diseases.

The most dangerous counterfeit of trachoma is a folliculosis of the conjunctiva, known here as lymphoid hypertrophy or adenoid hypertrophy of that membrane. This is particularly common among school children of both sexes. It is, I quote again from Saemisch, "a slight conjunctival hyperemia with follicular formation which provokes absolutely no disturbance and remains entirely latent, thus running its course." This never passes into trachoma and leaves no trace behind. In fact its discovery is ordinarily accidental, and is made during an examination of the eyes of school children during an epidemic of conjunctivitis. The two combined may well alarm the average examiner. Undoubtedly it exists in many cases without being suspected. It is not contagious, and it would be rank injustice to exclude such children from their school. Yet this has been done in some instances, may indeed have led not only to the banishment of individual scholars but even to the closing of the school. In inspecting such eyes it should be borne in mind that the cornea is not affected and that the course of the thing settles the diagnosis.

Parinaud's conjunctivitis, an affection of rare occurrence, is characterized by the development of follicles, in part small, jelly-like and arranged in rows, in part of almost gigantic size. But the disease is confined to one eye, and is accompanied by the development of the pre-auricular or inframaxillary glands. There is little danger of mistaking it for trachoma.

With these three affections alone is it possible to confound trachoma, and as has been seen the distinction is well marked. To stigmatize a case of catarrh or mild blennorrhea as trachoma is equivalent to telling a patient with eczema that he has leprosy, and quite as inexcusable.

It would seem that examiners of limited experience should be furnished with an abstract of the preceding facts. The sum and substance of the whole matter is that the diagnosis of trachoma should be intrusted to an expert, in the case not only of schools but of immigrants.

THE Johns Hopkins University has received $150,000 from the estate of the late Charles L. Marburg, $100,000 of which goes to the hospital and $50,000 to the university.—*Science.*

THE CONSERVATION OF HEARING IN OPERATIONS ON THE MASTOID REGION.*

BY W. SOHIER BRYANT, A.M., M.D., NEW YORK.

THE amount of residual hearing following the various kinds of mastoid operations depends, (1) on the integrity of the sound-perceiving mechanism; (2) on the amount of the sound-conducting mechanism left by the disease; (3) upon the functional efficacy of this conducting mechanism; (4) upon the amount of the conducting mechanism remaining after the operation, and (5) upon the functional efficacy of the sound-conducting mechanism remaining after the operation.

The first three conditions require no discussion. The fourth condition is fundamentally a question of the amount of destruction which the disease has caused, while secondarily and practically it is a question of how much of the mechanism the surgeon will be able to save. It is far easier for him to attack the tympanic contents indiscriminately, or make a clean sweep of everything in the tympanum, taking the healthy with the diseased structures, and to use the probe unrestrained by consideration of its effect upon the acoustic balance, than to save the parts of the conducting mechanism which the disease has not seriously injured and avoid touching or dislocating them.

When the simple mastoid operation is sufficient to fulfill the surgical requirement, the operator can conserve the ossicular chain intact if he is content to stay his hand at the aditus ad antrum, nor let his curiosity carry his probe as far as the incus. The surgeon who is about to perform a tympano-mastoid operation can serve the interests of the patient and preserve an important fraction of hearing if he will spend a few minutes previous to operation in examining the tympanum through the meatus in order to locate the structures which are not sufficiently diseased to require removal, such as the stapes and neighboring portions of the drum membrane, and in some cases the whole ossicular chain. In the cases where something more than a simple mastoid operation is required, the middle ear may need to be encroached upon more or less and some unavoidable injury must necessarily befall the sound-conducting mechanism. There is a great difference in the effect on the residual hearing if the major ossicles and stapes are removed or dislocated in whole or in part, or if they are preserved in position.

The fifth condition on which the maximum of residual hearing depends, namely, the functional efficacy of the remaining portion of the sound-conducting mechanism, is capable of much amelioration if the ossicles are preserved in position without dislocation and if careful consideration is given to the action, deficiencies and needs of the conducting mechanism in the individual case. Just as in cutting off a leg there is a point of election, so, too, in the middle ear. In the middle ear certain portions of the structure should

*Read at the meeting of the Eastern Section of the American Laryngological, Rhinological and Otological Society, Jan. 5, 1907.

be saved together, and certain others removed together. It is important for the middle ear, as well as for a leg, to have a stump that can readily be fitted with a mechanical appliance. An artificial drum membrane is of great post-operative service when a suitable stump has been left.

There are five rules to guide us in disposal of the tympanic structures: (1) The tympanum should be restored to its normal condition with nothing taken away if the malleus is left. (2) The incus should be removed if the malleus is out, because the incus acts as a damper of the stapes. (3) The posterior attachments of the membrane should be preserved after loss of the malleus and incus, because this part of the membrane can be trained on to the stapes and act as a sound transmitter for it. (4) The tympanum should be kept open when the malleus and incus are gone, in order that the sonorous oscillation may infringe on the fenestræ and promontory with the least loss of intensity. The anterior attachments of the membrana tympani should then be preserved and this part of the membrane trained across the ostium tympanicum tubæ to close it and prevent infection reaching the middle ear from the pharynx. (5) The tympanum should be kept open and the major ossicles removed if the stapes is out, to allow the freest access of sound waves to the labyrinth.

Careful examination of a large number of cases has shown us that the common hindrances to maximum transmission of sound are due either to unnecessary dislocation caused in the operation, to fixation of oscillating parts by cicatricial tissue, or to the dampening of the fenestræ. All these obstacles are usually combined. Cicatrices are the most easily demonstrated cause of reduced residual hearing. When the cicatrices are least in thickness or density, or, what is the same thing, when the tympanum approaches closest to normal in regard to the covering of the ossicles, ligamentous parts and fenestræ, the best hearing is obtained. The acuteness of hearing is also in proportion to the integrity of the ossicular chain. The more that is kept of this, the better the result. The preservation of all the finger tissue possible in the treatment of injured hands is of great importance to the later usefulness of the member. The same might be said of the ossicular chain, — that all the ossicular tissue possible should be preserved; even a small stump of the malleus is valuable.

We found that the cases with the best hearing were those which had the shortest tympanic convalescence, other things being equal, while those with the poorest residual hearing were the cases which had gone through a lingering tympanic convalescence.

The rapid restoration of the tympanum together with its function can sometimes be facilitated by allowing the membrane to heal up quickly, while drainage is kept up in some other direction as long as it is required. The necessary drainage may be obtained through the Eustachian tube, the mastoid wound, or, best of all, because there is no disfigurement, through an opening in the posterior membranous wall of the canal just external to the annulus. This method of drainage requires extensive removal of the posterior osseous wall. After the complete radical operation the tympanic drainage through the meatus is perfect.

The use of skin grafts in the tympano-mastoid operations does not seem to lessen the amount of dense tissue covering the stapes.

The following cases are mentioned with the intention of showing the methods employed to secure the best conditions for the preservation of hearing.

Case I. A simple mastoid operation with epidural complications on a girl sixteen years old. Middle ear was not attacked at the operation except by a very extensive myringotomy. Middle ear dry on fourth day after operation, watch heard 20 inches; on the tenth day the membrana tympani was completely healed and the watch was heard 4 feet; six months later the watch was heard 8½ feet.

Case II. A modified tympano-mastoid operation was performed for recurrent mastoiditis and otorrhea on a lad of seventeen. The tympanum was invaded from behind, above and through the membrane as far as it was possible to go without dislocation of the ossicles. On the fifth day after the operation the middle ear was dry; on the tenth day the membrana tympani was completely healed; on the fifteenth day, watch was heard 13 inches; ten months after the operation, watch was heard 6½ feet.

Case III. Tympano-mastoid operation for chronic middle ear suppuration and tympanic caries. Woman, age twenty-four. None of the ossicles present at time of operation. No skin graft used. On the twenty-second day after the operation the tympanum was dry and epidermized. Two years and three months after operation, watch heard 10 inches.

Case IV. A very slow mastoid convalescence with comparatively good hearing. Man, age seventy-seven. O. M. P. C., perforation of left membrane, mastoiditis, osteomyelitis and scattered pus foci; operation uncovered dura of middle fossa and knee of sinus. Posterior wall of canal extensively removed, membranous canal perforated posteriorly. Mastoid wound sutured around small drain, no packing. Fourth day, wound closed by first intention. Abundant serous discharge from the meatal opening. The wound within filled up very slowly, discharging serum through the fistula in canal. Did not suppurate. Thirty-ninth day, fistulæ in canal finally closed. Acumeter O. S. 7 inches, O. D. 4 inches. Sixty-first day, watch heard 10 inches from the left ear.

Conclusion. — The maximum post-operative hearing is obtained by judicious preservation of the sound-conducting mechanism, and by the most rapid possible convalescence of the middle ear.

Women Medical Students in Switzerland. — Switzerland has 5 universities, with a total of 2,102 medical students this year. Of this number, 1,171 are women, but only 31 are natives of the country. These figures show an increase over last year, when the total number of students was 1,799, including 993 women. — *Jour. Am. Med. Asso.*

Clinical Department.

COMPLETE SUPRAPUBIC PROSTATECTOMY UNDER NITROUS OXIDE GAS ANESTHESIA.

BY GEORGE WALKER, M.D., BALTIMORE, MD.,
Instructor in Surgery, Johns Hopkins University.

IN the following case one kidney was so seriously affected that it was thought injudicious to use chloroform or ether. Gas was employed for the complete operation and proved very satisfactory. I feel sure that, in a number of these old patients suffering from prostatic hypertrophy, the kidneys are very often implicated and are in no condition to stand the irritation of the usual anesthetics. In gas we have an agent which has absolutely no effect upon the kidney structures and therefore permits an operation which otherwise it would be hazardous to perform. In some of these cases the anesthetic, and not the operation, is the cause of death, although the fatal issue may be delayed for several days.

S. N., aged sixty-eight. Family and previous history good; gonorrhea at the age of twenty-five.

Present illness. — Five years ago patient began to suffer from difficulty in micturition; the stream was slow in starting and diminished in size. Micturition was somewhat increased in frequency. Nevertheless, the health was not much disturbed until two years ago, when the difficulty became greater and the patient began to suffer from occasional nausea. One year ago the nausea was more pronounced, the appetite was poor and flesh and strength gradually failed. The difficulty in micturition increased and about six months ago he was unable to void a stream and incontinence set in. There was no pain nor local discomfort.

Examination. — The patient is feeble and anemic; the muscles are soft and flabby; there has evidently been loss of flesh. The heart and lungs are negative. Above the symphysis there is a firm, ovoidal, fluctuating mass which extends to the umbilicus; it is dull on percussion and, no doubt, is the distended bladder. The left kidney is easily palpable and forms a mass about the size of a large orange. On deep inspiration it can be grasped between the hands. It is not tender. The other kidney is not palpable.

The prostate is enlarged; the right lobe slightly more than the left. As a whole, the gland is smooth, not nodular. It is firm in consistency but not hard. The border can be mapped out readily. There is nothing about it suggestive of a new growth. The vesicles cannot be felt. The external genitalia are normal. There is a hernia on the right side. The temperature is normal; the pulse 78, of good volume. The arteries are soft and not tortuous. The patient is wearing a rubber bag on account of the dribbling. A silk catheter, with a prostatic curve, is readily introduced. It meets with only slight resistance in the prostatic urethra, but apparently after it enters the bladder it seems to encounter something that gives one the impression of a projection in the middle line. Nine hundred cubic centimeters of urine of a pale straw color and slightly cloudy are withdrawn.

Urinalysis. — Pale, straw color, turbid, acid; S. G. 1,012; normal odor; moderate amount of albumin; no sugar; epithelial cells of various shapes, pus cells, granular *débris;* no casts. Bacilli in moderate numbers.

Diagnosis. — Enlarged prostate with middle projection. Secondary hydronephrosis with infection.

On account of the extreme weakness of the patient and the condition of the kidney, it was thought unwise to operate at this time, so he was sent home with a nurse who was directed to catheterize him every six hours, irrigate the bladder twice daily with a boric acid solution and give hexametheylenetetramine externally. After two weeks he began to improve and at the end of four months he had regained a very fair condition of health. The size of the kidney had somewhat diminished, but the organ was still distinctly palpable. The urine was less purulent and the albumin had decreased.

The gas was administered for me by Dr. Rushmore, who gave it mixed with oxygen. The patient went rapidly under and remained entirely quiet, completely relaxed and free from cyanosis for thirty minutes, the time required for the complete operation and the application of the dressing. Within five minutes after the gas had been taken off the patient had regained consciousness completely; there were no after-effects and the convalescence was satisfactory in every way.

Operation. — (Dr. William Fisher.) The suprapubic opening was made; two lobes were found in the middle line just behind the urethral orifice. An incision was made with a pair of straight scissors and just to the side of these the edge of the incision was slightly raised with a blunt dissector. The index finger of the operator was then introduced into this incision, while my own index and middle fingers were passed into the rectum and pressed the gland upward. The enucleation was easy and complete. The bleeding on account of the congestion of the vessels produced by the gas was somewhat more than that seen under ether or chloroform, but was not sufficient to give any trouble. Nothing was introduced into the prostatic cavity; a double drainage tube and two strips of iodoform gauze were passed into the bladder, but no sutures were used. The external wound was packed with iodoform gauze. The edges of the upper angle of the wound (skin and muscle) were approximated.

The secretion of urine was abundant. There was no pain, the bleeding was insignificant. The bladder was irrigated through the tube after twelve hours. After this the irrigations were continued once daily. The gauze, which had been inserted into the bladder, was removed on the second day. The tubes were removed on the fourth day and not replaced. After this an occasional irrigation through the urethra was practised. The temperature ranged from about 99° to 100°. The first urine was passed through the urethra on the seventh day; sounds were introduced once; the suprapubic wound rapidly granulated. The patient was discharged on the fourteenth day with the wound completely closed, except for a slight superficial granulating surface above the muscle. There was no leakage after the eleventh day.

The examinations since have shown the patient to be in perfect health; he has gained about forty pounds; the function of the bladder is absolutely perfect; the urine is nearly clear. He passes urine only once at night and four or five times during the day.

A FORTY PER CENT MORTALITY AMONGST CHILDREN. — The medico-sanitary situation in Lapland appears to be ominous. A series of reports shows that the population of the extreme north of Russia is almost devoid of medical assistance, so that the local industries are deprived, during long periods, of many workmen, resulting in a continuous decline of output. The mortality amongst children is most striking, amounting in some localities to 40 per cent. It is not stated if this figure relates to infants under one year only, but presumably it does.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY W. L. BURRAGE, M.D., BOSTON.

(Concluded from No. 9, p. 273.)

AGGRESSINES AS FAVORING GENERAL INFECTION FOLLOWING THE INTRODUCTION OF PATHOGENIC BACTERIA IN THE UNINJURED GENITAL TRACT OF ANIMALS.

Caroline B. Towles [1] reports the results of a series of experiments conducted on guinea-pigs in the laboratory of Prof. von Jaksch in Prague to determine the virulence of infective organisms when introduced into the vagina and uterus. After citing the results obtained by previous experimenters by placing pathogenic bacteria in the normal vaginæ of both human beings and animals, all negative as to the production of general or local reaction, the writer takes up the subject of aggressines as employed by Professor Bail and his pupils. Working with cholera and typhoid organisms, Bail found that the sterilized exudate produced in an animal by infection was capable of producing severe lesions or death when used in association with micro-organisms which, when injected alone, produced only a mild reaction. The serious constitutional symptoms were apparently due to the very rapid multiplication of the injected bacteria brought about by the aggressine, which neutralized the normal opposition of the animal body. A distinction is drawn between aggressiveness and virulence, the former referring to the power of the micro-organism to multiply and the latter to its pathogenic effect on its host.

The author used in her experiments an aggressine of streptococcus prepared from the pleural exudate of a rabbit infected with a virulent culture of streptococcus and sterilized with toluol. In the five experiments a pair of guinea-pigs of nearly the same weight were selected for each test, one for the experiment and the other for the control. A pludget of cotton saturated with fresh exudate containing a pure culture of streptococcus was introduced into the vagina; at the same time 3 cc. of aggressine fluid were injected into the peritoneal cavity.

The guinea-pigs were watched carefully during life and examined post-mortem. The experiments were repeated with pregnant animals. Following are the conclusions:

First, very young animals and those that have been treated with aggressine may receive general infection from streptococcus introduced into the uninjured vagina or uterus.

Second, in adult guinea-pigs, whether pregnant or not, a general infection cannot be produced by the mere presence of streptococcus, however virulent, in the uninjured vagina or uterus; on the other hand the subcutaneous injection of aggressine fluid, together with the introduction of bacteria, promptly results in death, no matter whether the animal be pregnant or not.

[1] Johns Hopkins Hosp. Bull., Dec., 1906, 405.

ROENTGEN RAYS FOR MENORRHAGIA.

Görl [2] reports the results of treating with the x-rays a patient forty years of age, suffering with menorrhagia caused by a fibroid. The patient was a bleeder. She had been treated by preparations of hydrastis administered first by mouth and then by hypodermic injection, fifty injections having been made without relief. She refused all operative treatment, and being a subject of hemophilia, the danger of operation was sensibly increased. Thirty treatments through the abdomen, each lasting ten minutes, were given during three months with the result of diminishing the number and duration of the flowing periods. During the next month, eight treatments with the x-rays were made. For four months previous to reporting the case before the Nuremberg Medical Society in September, 1906, the patient had been free from flowing and the myoma was diminished in size.

The question arose in the author's mind whether the menopause, delayed normally in the case of fibroids, had been brought on in his patient by the action of the Roentgen rays on the ovaries, and whether the Roentgen rays may not prove a useful means of providing atrophy of the ovaries in cases of myoma of the uterus, thus taking the place of the old castration operation for these tumors.

INFECTIOUS GENITAL HERPES IN WOMEN.

Lutaud [3] describes a form of herpes of the genitals or of the mouth which occurs in women who are the subjects of infection either postpartum or postabortum. The patient has the usual symptoms of puerperal infection which are no longer of grave import. Then there comes on a sudden rise in temperature with chills and there appears a crop of herpes of the genitals or the mouth followed by a fall in the temperature.

Whenever the physician observes a renewed rise in temperature after puerperal infection he should be on the lookout for herpes of the vulva or mouth. Genital herpes is a result of infection and is always preceded by chills or malaise. It also occurs after the menopause in women suffering with fibromata or other uterine disease.

VANADIC ACID AS A TOPICAL APPLICATION IN GYNECOLOGY.

H. Le Blond [4] gives us the result of four years' use of vanadic acid as a topical application in the St. Lazare Hospital. It is a golden colored liquid without odor. It is used in gynecology by diluting with three parts of glycerin. Cotton tampons are soaked in this solution and packed in the vagina. It is of especial value in the treatment of vaginitis. After cleansing the vagina with peroxide of hydrogen the vagina is packed with vanadic acid saturated tampons which are changed every twenty-four hours. No discomfort is caused and the vaginal mucosa loses its redness and soon returns to a normal

[2] Zentralbl. für Gynäkol., no. 43, 1906, p. 1184.
[3] Jour. de Méd. de Paris, Sept. 2, 1906. Am. Jour. Obstet., Dec., 1906, 891.
[4] Progrès Méd., July 14, 1906. Am. Jour. Obstet., Dec., 1906, 888.

condition. Acute cases yield rapidly, while no chronic one has continued more than two months after treatment was begun. The author has treated metritis and urethritis with vanadic acid and considers it preferable to ichthyol and creasote as a therapeutic agent.

Reports of Societies.

THE NEW YORK PSYCHIATRICAL SOCIETY.

STATED MEETING, JAN. 2, 1907.

THE PRESIDENT, DR. ADOLF MEYER, in the Chair.

THE SYMPTOMATIC-PROGNOSTIC COMPLEX OF MANIC-DEPRESSIVE INSANITY.

This paper was read by DR. GEORGE H. KIRBY, of the Pathological Institute of the State of New York.

DR. KIRBY: The field of psychiatry is too complex for us to expect absolute or clear-cut distinctions either in disease types or nosological groups. Kraepelin did a great service by showing that most of the previously made distinctions of types could be replaced by far more valuable nosological groups if one considered the whole *course* and *outcome* of mental disorders. From this point of view the great bulk of the acute psychoses can be brought under two divisions, *viz.*, those that pass into deterioration and those that end in recovery. It was found that in cases which terminated in either of the above-mentioned ways, one was able to identify certain characteristic symptoms *present from the beginning* and which thus acquired a distinct prognostic value. Two large symptomatic-prognostic groups were thus created — dementia precox and manic-depressive insanity. At present it seems best to consider the manic-depressive complex merely as a reaction type and not a disease entity as Kraepelin proposes. It is rather a type of response which may be elicited in various ways. In some cases the constitutional disposition may be most important, but in others the exogenous causes are of great importance and give valuable hints as to prophylaxis and probability of recurrence. This peculiar kind of reaction in its pure form has the characteristics of a benign disorder and thus a favorable prognosis is implied. Various additional elements may enter to confuse the picture and the symptomatic and prognostic features may seem to diverge at various times. There are many equivalents difficult to recognize. In a few cases the principle seems to fail through transitions to other forms.

A series of cases was reported which had offered difficulties for various reasons. Some patients were also presented. A recurrent depression with retardation and prominent auditory hallucinations; another case of depression with sensory-somatic complex and only slight signs of difficulty in thinking. A third case illustrating the mixed forms of manic-depressive insanity, the so-called "manic-stupor," showing inhibition and mutism with an exhilarated mood.

DISCUSSION.

DR. CHARLES L. DANA was inclined to think "prognostic principle" a rather unfortunate term, inasmuch as this was not all that was used in attempting to establish types. The consideration of the whole life history was the great principle to be used in making classifications, and he did not think there could be any objection found to basing groups of insanity upon this method. It was not new but the rational and accepted one in other forms of disease. The case presented by Dr. Kirby in which there was melancholia without retardation of thought was interesting, but was a type not infrequently seen outside of asylums at least, and often in connection with intense suicidal feelings. This suicidal impulse was not always due to somatic feeling of inadequacy, but was sometimes also a well reasoned out point of view. A woman of intelligence, for example, realizing that she had had melancholia now three times, that she would have it again, that she would be a burden to her family, that she would never be right permanently, schemes to kill herself, obeying in a way a logical conclusion as well as a morbid impulse. Such patients did not have always retardation of thought, but they often could not do their work easily or effectively. He did not believe the first patient presented by Dr. Kirby would be able to do her work. Such patients could not play games of skill as formerly, becoming tired quickly. Dr. Kirby had neglected to touch upon chronic melancholia, melancholia of involution, a group which Dr. Dana believed to be represented in early life. He had records of cases of melancholia at the climacteric who gave a history of depression earlier very much like that of later life, so that there was a melancholia of early life which did not belong to manic-depressive insanity.

DR. L. PIERCE CLARK thought the symptom complex of manic-depressive insanity would be easier of analysis if the idea were borne in mind that the complex was likely to partake of the nature of the physiological epochs at which it occurred. The suicidal impulse to which Dr. Dana referred was well known to most alienists. Even in convalescence this tendency was most marked.

DR. AUGUST HOCH said it was usually claimed that it was impossible to formulate any laws of prognosis about the different forms of manic-depressive insanity. This was not quite correct. Dr. Kirby had shown that a careful reasoning might do much in formulating a special prognosis. Dr. Hoch wished to mention a few more general points of view from which a prognosis might be made. The first referred to the depressions. The symptoms of the entire depressive complex were retardation, sadness and the anxiety-unreality complex. In the typical manic-depressive states there were only sadness and retardation. In such cases the outlook was good. In the typical involution melancholias there was, from the beginning, uneasiness, anxiety, to which were often added later in the course symptoms of the anxiety-unreality complex. In such cases the outlook was bad; such patients got into a state of deterioration, characterized by a narrowing of the mental horizon. But the anxiety-unreality complex might also be reached by way of the manic-depressive states. This happened not infrequently in the manic-depressive depressions, which occur at the involution period, sometimes in those occurring earlier in life. These cases might, therefore, begin with a typical retardation or feeling of inadequacy and then develop an anxiety-unreality complex. In such cases the prognosis was not so bad as in the typical involution melancholias, but decidedly less good than in the simple manic-depressive depressions.

The second point of view referred to the prognosis of the manic states. All alienists knew that those cases which present the best prognosis are cases of clean-cut manias of considerable intensity, manias in which the exhilaration, the general excitement and the flight of ideas are all of about the same degree. The hypomanic states were much less favorable prognostically. Dr. Hoch had always found that cases in which the disorder of behavior was out of proportion compared with the flight of ideas and the intellectual

disorder in general, were prognostically also more unfavorable. Such cases were apt to have long attacks or many attacks. The prognosis in cases in which a delusional element was strikingly out of proportion to the flight of ideas was also more doubtful than in the simple classical mania. In other words, the cases of mania in which there were strong discrepancies in the intensity of the different symptoms were those which presented a less favorable outlook than those in which there existed a certain harmony in the intensity.

Book Reviews.

Plaster of Paris, and How to Use It. By Martin W. Ware, M.D. New York: Surgery Publishing Company. 1906. $1.00.

This little book of 88 pages is written out of a large experience on the subject with which the author deals. It is profusely illustrated with 72 cuts. It contains seven chapters which present one of the best narratives of the sort that we have read. It is useful especially for the student and the general practitioner, to whom we recommend it cordially.

The Diagnosis and Treatment of Intussusception. By Charles P. B. Clubbe. Edinburgh and London: Young J. Pentland. 1907.

The writer gives us an enthusiastic and readable story of 55 pages, with a voluminous appendix, in an attractive little book which the student can master in an hour. He tells us nothing especially new, but brings down to date the records of the interesting affection with which he is dealing.

This is the type of short, comprehensive and lucid monograph which appeals especially to students and operating surgeons.

A Syllabus of Materia Medica. Compiled by Warren Coleman, M.D., Professor of Clinical Medicine and Instructor in Materia Medica and Therapeutics in Cornell University Medical College, Assistant Visiting Physician to Bellevue Hospital. Third edition, revised to conform to the Eighth Decennial Revision of the United States Pharmacopeia. Pp. 186. New York: William Wood & Co. 1906.

The attempt in this small book is to simplify the study of materia medica by grouping drugs in various ways and by other means of assisting the memory. From this point of view the book is certainly useful. Two sections have been added upon minor toxic actions and toxicology.

Tumors, Innocent and Malignant; their Clinical Characteristics and Appropriate Treatment. By J. Bland-Sutton, F.R.C.S. Fourth edition. Chicago: W. T. Keener & Co. 1907.

Mr. Bland-Sutton's well-known work on tumors has been a standard textbook for several years, and this fourth edition makes good the promise of previous publications. The third edition has been considerably elaborated upon, and several new features on the subject of tumors have been introduced. Especially the author has added to his former writing a discussion of chorion-epithelioma, of the causation of cancer, of tumors of the ovary and testicle and of heterotopic teeth. There are one hundred extra pages, numerous cuts, and a notable bibliography.

The striking thing about Bland-Sutton's work is that obviously it is his own work. His conclusions are drawn from his personal observations; his writing has the clear, simple, pointed characteristics we are familiar with in the publications of careful English authors. One's interest flags nowhere, and the book is well worth the thoughtful reading of every student and practitioner of surgery.

Beginning with a brief statement of the difficulty of framing a satisfactory classification of tumors, the author presents his plan, discussing his subject under six groups:

Group I. Tumor diseases of the connective tissues. This includes lipomata, chondromata, osteomata, myelomata, sarcomata, myxomata, myomata, neuromata, angeiomata, endotheliomata, and uterine fibroids.

Group II. Tumor diseases of teeth. Odontomata.

Group III. Epithelial tumors. This comprises papillomata (warts), adenomata, carcinomata.

Group IV. Tumors arising from the fetal membranes. Chorion-epithelioma (deciduoma).

Group V. Teratomata, dermoids. Embryomata.

Group VI. Cysts.

Group I, embraced in the first twenty chapters, is the most interesting portion of the text, and the reviewer finds little to add to previous statements, except to note that in describing sarcomata the author pays scant attention to those growths of the giant-cell type, nor does he distinguish variations in the malignancy of bone sarcomata, whether of round cell or spindle cell structure. Hypernephroma is not named, though tumors from "rests" briefly are discussed. Chapter X, on melanotic tumors, is especially interesting. The possibility of malignant growths arising from moles is not suggested. The classification of benign tumors of the breast is not satisfactory, and the reader is left in a state of confusion which the recent work of Warren and Bloodgood is required to correct.

Such are a few of the trifling exceptions one finds to the general excellence of Group I, as it is discussed by the author.

Group II, which deals with diseases of the teeth, is given considerable space. It contains a good deal of new matter.

As to Group III one finds little to add beyond warm commendation of a spirited writing, and the accurate, satisfactory illustrations.

Group IV comprises a discussion of chorion-epithelioma (deciduoma) which is well and briefly presented. Group V, teratomata and dermoids, tells us more than the words suggest. The chapters deal as well with freaks and monstrosities, in an entertaining fashion; while under Group VI the author gives us a novel and instructive essay on cysts of organs.

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THE LABORATORY IN PRACTICE

WHENEVER one hears that the practising physician has neither the time nor the skill to concern himself with laboratory work, the first essay of Dr. Edward L. Trudeau in this field comes to mind. When Koch announced his discovery of the tubercle bacillus in 1882, Trudeau had his home at Saranac Lake, a settlement remote from civilization, desolate in its surroundings, forty-two miles from any railway. He secured an English translation of Koch's revolutionary paper; whereupon, being without scientific training, he was instructed by Dr. Prudden during some visits to New York in the essential principles of bacteriology and how to stain the tubercle bacillus.

At Saranac Lake, then, without paraphernalia other than his microscope, without access to treatises on the subject, the water often turned to ice in his house (his wood stove would generally not burn all night, nor was there at that time any coal in that region), Trudeau arranged a home-made thermostat which had no regulating apparatus, and was heated only by a small kerosene lamp. For protection against violent changes in temperature he inclosed this thermostat in a series of wooden boxes, the doors of which could be opened or closed at will, according to the intensity of the cold. His guinea pigs he kept in a hole under the ground, heated by a kerosene lamp, this being the only spot in Saranac Lake where they could escape freezing at night. Under such circumstances as these he obtained the tubercle bacillus in pure culture, being the second observer in America to do this; and with these cultures he repeated all of Koch's inoculation experiments.[1]

[1] E. L. Trudeau: Tuberculosis Work at Saranac Lake; The First Annual Report of the Henry Phipps Institute.

When a man can do such things as these in the face of such difficulties, surely even those engaged in very active practice might, with all the advantages that most enjoy, become interested to a greater degree than is now customary, in the subjects upon which work may be done in the laboratory. Such work might be made a recreation or a fad, which would still profit greatly in the diagnosis of difficult or obscure cases. To be sure, some such work is now routine with every physician. Who is there that does not examine his own sputa and his own urines? But to these things much more might be added — the examination of stomach contents, of urinary elements and sediments (other than albumin and sugar), of feces, of aspirated fluids, for various bacteria, of throat cultures and the like.

Some among these examinations require a very special training, and are, of course, quite too difficult for the general practitioner. The blood should be examined much oftener than it is, and the results will often be valuable in diagnosis; but here the technique must be undertaken by a colleague who has devoted himself exclusively to such work. In many municipalities and in some states the health authorities undertake such examinations without charge in behalf of destitute patients. In New York state, at least, a very wise precedent has been established in the appointment of a county bacteriologist for Ontario County, whose duty it is to make examinations upon request of any one of its registered physicians.

There is some tendency among us to divide into two camps concerning these things. There are those who would make the laboratory a court of final resort in diagnosis, and those, on the other hand, who profess their purely clinical abilities to be all-sufficient in this regard. To hold extreme views either way is unfortunate. The laboratory and deep bedside observation should help and reinforce each other; they must always be correlated. The one may oftentimes rectify the shortcomings of the other. There *may* be a tuberculosis despite negative bacillus findings; and a blood examination clearing up an obscure infection is certainly a comfort to the responsible clinician.

EXHIBIT OF INDUSTRIAL CONDITIONS.

AN exhibit of industrial conditions in relation to health, safety and welfare is to be held in Horticultural Hall, Boston, the week beginning April 8. This is the first exhibit of the kind

which has been held in New England; it is designed to illustrate the conditions under which wage-earners work in this and in other states, with the essential object of exciting the interest of the public and creating a sentiment which may result in remedial legislation, where such is necessary, and the general improvement of the conditions of labor.

To accomplish this booths are to be erected illustrative of various actual working scenes which are a menace to health and life, together with photographs and data of various sorts which will render the situation more clear. Particular attention will be given to the subject of child labor and the conditions under which women work. Tenement work rooms will be reproduced and the conditions of life in tenements in relation to health. Attention will also be given to the progress made in combating the evil of child labor, over-crowding and faulty sanitation. Model work rooms will, to this end, be exhibited in conjunction with those which are open to criticism. A still further means of enlightening the public will be through afternoon and evening lectures from persons who may speak with authority on various methods of industrial development.

A large number of charitable organizations, among which is the Boston Society for the Relief and Control of Tuberculosis, are combining in the movement. The exhibit will be under the general charge of Mr. Alexander M. Wilson, secretary of the Boston society to combat tuberculosis. The general design and purpose of this exhibit is evidently precisely similar to those which have been given in this and other states in the tuberculosis campaign. Such exhibits have proved of decided educational value, and we have no doubt that this, similar but somewhat broader in scope, will have a like effect. It is another step toward the general tendency to inform the public at large regarding various conditions which have a more or less direct bearing upon the health and welfare of the community, and as such should receive the cordial support of the medical profession.

THE DIAGNOSIS OF TRACHOMA.

We print in this issue an article on the Diagnosis of Trachoma, in which attention is drawn to the mistaken conclusions sometimes reached by inexperienced examiners. Since the passage of laws requiring the examination of immigrants and school children with reference to this disease, the subject has become a matter of national importance. A mistaken diagnosis clearly does an injustice to the community, as well as to the individual affected.

In this connection another important paper has recently appeared in the February number of the *Bulletin of the Johns Hopkins Hospital* from the pen of Dr. J. Bordley, on Trachoma in the American Negro Race. From time to time, cases diagnosticated as trachoma have been reported as occurring in negroes, often from apparently authoritative sources. Dr. Bordley's conclusion, however, after a careful review of the literature, is that it has not yet been proved that any unquestioned case has ever been reported in this race. Dr. Bordley was stimulated to write his paper through the careful examination, both clinical and microscopic, of three cases occurring in negroes, in which had the first stages only been observed, the diagnosis of trachoma would unquestionably have been made. Each of the cases, however, after showing in the early stages an apparently characteristic infection, recovered completely, leaving behind no traces of the connective tissue lesions met with in true trachoma. In each case a practically pure culture of the B. xerosis was obtained from the diseased area, and Dr. Bordley, therefore, concludes that under certain circumstances this organism may attack the conjunctiva of the negro and provoke an inflammation which in the first stages is impossible to differentiate from that of trachoma. It appears, from this investigation, that although negroes in other countries are not immune to this disease, the American negro presumably is, and that cases hitherto reported as trachoma in that race are probably due to an infection with the B. xerosis. How the American negro has gained this immunity is a question which has as yet not been solved.

We need hardly reiterate what our contributor insists upon in his article, that accurate diagnosis in this disease is a matter of the utmost consequence, both for social and political reasons.

INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

The twelfth annual meeting of this important association will be held in Berlin during the fall of this year. It is probable that the next meeting, about three years hence, will be held in this country. If this is accomplished, it will be due to the efforts of Dr. Charles Harrington, professor of Hygiene in the Harvard Medical School and

secretary of the Massachusetts State Board of Health, who represented the United States on the permanent international committee at the last meeting which was held in Brussels three or more years ago. An informal invitation was at that time extended to the congress by the authority of the late Secretary Hay to hold its thirteenth session at Washington, and it is probable that favorable action will be taken by the government to bring such a meeting about in 1909 or 1910.

For various reasons it is fitting that such a congress should hold an occasional meeting in this country. The United States has within the last few years taken a position of importance in international matters, and perhaps particularly in those which relate to public hygiene. As Dr. Harrington has pointed out, it is probable that the Central and South American republics, the sanitary conditions of which are of vital importance to the United States, would send delegates to such a congress and that matters of far-reaching importance might thereby be discussed. It is said that British, German and Italian delegates to the last congress at Brussels were strong in their desire to meet in this country. It is therefore to be hoped that the plan of holding the congress in Washington may be carried out. There is small doubt that the attendance would be large and representative.

MEDICAL NOTES.

RECOGNITION OF THE PHYSICIAN AS A PUBLIC CITIZEN. — In late years the influence of the medical profession has been made to be felt more and more in questions of public welfare. The important part played by the physician in the community is being gradually more widely recognized. The Hon. Claude A. Swanson, governor of Virginia, voiced this feeling a few days ago in introducing a medical man who was to speak on the general subject of a closer co-operation between the physicians of Virginia and the people. The governor of Virginia stated that it was his intention to appoint a physician on every board of every institution in that state, and further he desired to see a physician on every school board in every county and city of the state. The idea was expressed that physicians are not generally recognized by legislative bodies on account of an erroneous idea that physicians are working for their individual ends, instead of for the people whom they represent. This expression of the chief executive of the "Old Dominion" should serve as a suggestive stimulus in many states. A wider use of medical men by the community for work beyond the bounds of their immediate profession, but in which their technical knowledge of the body and its hygiene would be of great usefulness, should certainly be encouraged.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 6, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 46, scarlatina 39, typhoid fever 8, measles 5, tuberculosis 40, smallpox 0.

The death-rate of the reported deaths for the week ending March 6, 1907, was 22.08.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, March 2, 1907, was 225, against 242 the corresponding week of last year, showing a decrease of 17 deaths and making the death-rate for the week 19.48. Of this number 114 were males and 111 were females; 219 were white and 6 colored; 131 were born in the United States, 88 in foreign countries and 6 unknown; 39 were of American parentage, 151 of foreign parentage and 35 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 47 cases and 6 deaths; scarlatina, 51 cases and 2 deaths; typhoid fever, 2 cases and 0 deaths; measles, 8 cases and 0 deaths; tuberculosis, 40 cases and 20 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 37, whooping cough 1, heart disease 18, bronchitis 9 and marasmus 5. There were 12 deaths from violent causes. The number of children who died under one year was 40; the number under five years 58. The number of persons who died over sixty years of age was 52. The deaths in public institutions were 86.

There were 3 cases and 3 deaths reported from cerebrospinal meningitis during the week.

REPORT OF THE MASSACHUSETTS BOARD OF REGISTRATION IN EMBALMING. — The first annual report of the Massachusetts Board of Registration in Embalming, created by act of legislature in 1905, has been published. Of 1151 applicants appearing for examination, 29 failed to pass at the first test. Sessions of the board have been held in various parts of the state and rules and regulations have been adopted looking toward the more satisfactory transportation of the dead and other matters connected with the work of the undertaker.

Dr. Boehm to read a Paper before the German Orthopedic Association. — Dr. Max Boehm, director of the Department of Mechanotherapy at the Massachusetts General Hospital, will sail for Germany on March the 14th. Dr. Boehm goes to read a paper on April 22, before the Orthopedic Congress which is to be held in connection with the meeting of the German Surgical Association. The title of Dr. Boehm's paper will be "The Etiology of Juvenile Spinal Deformities." This paper embodies work carried on in the anatomical department of the Harvard Medical School and at the Massachusetts General Hospital. It is to be presented on the personal invitation of the president of the Congress. While away Dr. Boehm will probably deliver addresses also in Liverpool and London on the same subject.

Bills before the Legislature. — The committee of the legislature before which Dr. Charles Harrington's bill on vaccination was presented has unfortunately reported the bill in such a way that its intent is practically lost. Dr. Harrington had proposed an amendment to the existing law, substituting the words "the school physician assigned to that school," instead of "a regular practising physician," in relation to the signing of certificates of exemption from vaccination. The committee has voted to report this bill, leaving the original phrase "a regular practising physician" and inserting the words "granted for cause stated therein." The section now reads, therefore, "A child who has not been vaccinated shall not be admitted to a public school, except upon presentation of a certificate granted for cause stated therein signed by a regular physician that he is not a fit subject for vaccination." This still allows for evasion of the vaccination law, which it was Dr. Harrington's intention to prevent by the introduction of his amended bill.

The petition of Dr. R. C. Cabot for legislation relative to the labelling of patent or proprietary drugs and foods has been favorably reported by the Committee on Public Health.

The petitioners in the bills looking to the restriction of the practice of Christian Science have been given leave to withdraw.

NEW YORK.

Problems of Insanity. — A lecture on "The Development of the Legal Regulations Concerning the Insane, with Suggestions for Reforms," was delivered under the auspices of the New York Psychiatrical Society at the Academy of Medicine in that city March 2, by Dr. Allan McLane Hamilton. This was the fourth in a series of public lectures on the general subject of insanity.

Typhoid Fever on Battle Ship "Connecticut." — The new battle ship *Connecticut*, of the Atlantic Fleet, arrived in port on Feb. 28, from Guantanamo, Cuba, with thirty-five of her crew ill with typhoid fever, and the patients were at once transferred to the Naval Hospital in Brooklyn. In addition, there were on board eight other sick sailors from other vessels of the fleet, but none of them had typhoid. This is said to be the largest number of incapacitated men that has arrived at New York on a naval vessel in time of peace. It has been but a comparatively short time since the *Connecticut* sailed from the Brooklyn Navy Yard, though it is asserted that no cases of typhoid developed until the ship had been away over six weeks. While various theories have been suggested, the origin of the outbreak is at present unknown, and Admiral Evans has appointed a medical board of inspection, with Medical Inspector Howard Ames as its head, to investigate the cause of the infection.

Obituary.

SIR MICHAEL FOSTER.

It is one of the misfortunes of a great career that death should be a signal for appraisement. The grave is scarcely closed ere places and works are set in a catalogue. Born March 8, 1836, Michael Foster was bachelor of medicine in 1858, demonstrator of physiology at University College in 1867, professor of physiology at University College in 1868, Fullerian professor at the Royal Institution in 1869, prelector at Trinity College, Cambridge, in 1870; fellow of the Royal Society in 1872; contributor to the Handbook of the Physiological Laboratory in 1873; founder and editor of the *Journal of Physiology* in 1878; secretary of the Royal Society in 1881; knight and president of the British Association in 1899; member of Parliament for the University of London in 1900; prime mover in the international congresses of physiology; author of many scientific papers, "An Introduction to Embryology," a memorable textbook, a life of Claude Bernard and a History of Physiology — thus it would read. Beyond question a remarkable list, even for a life of seventy-one years, yet how little of the man it reveals. It is a list of opportunities; his achievement lies behind. In truth, the more closely men are studied, the more elusive they become. The visual field narrows in proportion to the sharpness of our gaze. The

forest fades when we regard a tree. The particular inevitably destroys the general. Sir Michael Foster was a power in the development of physiology, but the secret of his influence is not to be found in the data of the biographical dictionary. His strength lay rather in temperament, in felicity of choice, and in the admirable co-ordination of qualities in themselves of sound but not surpassing excellence.

He began life as a practitioner, the assistant of his father, who was the principal surgeon in the town of Huntingdon, a training the value of which will be doubted only by those who never have experienced it. Very early in his career he had the good sense, or the good fortune, to come into contact with remarkable men, a privilege for which Marcus Aurelius very justly thanks the gods. He was a pupil of Sharpey, whom he succeeded as professor of physiology, and he was deeply influenced by Huxley, whom he succeeded as professor at the Royal Institution. According to Sir Michael's own story, he owed the appointment at the Royal Institution to a lady. At the close of one of Huxley's celebrated lectures on the brain, this lady expressed her appreciation of the masterly clearness with which Huxley had made the structure and function of the brain so plain to them. She herself was especially interested in the cerebellum, and would dear Professor Huxley tell her — she could not *quite* remember — whether the cerebellum was on the inside or the outside of the skull? Whereupon the despairing Huxley, long tried by the frequent combination of general information and special ignorance, wrote to Foster to take his place at once.

The next year the young physiologist went to Cambridge as prelector at Trinity College. Here he began to build up that school of physiologists which forms his best title to our gratitude. It was a happy time. Ludwig, Brücke, Helmholtz, Du Bois-Reymond, Bernard, Marey, Chauveau and other physiologists on the Continent had gathered many a harvest in the rich fields to which Johannes Müller had led them. The English were beginning to stir, but only the prophetic mind could have foreseen the rapid change which the spirit of the time would bring. Burdon-Sanderson at Oxford and Foster at Cambridge were leaders of the new movement. Among those enriched by Foster's influence were Gaskell, Francis Darwin, Dew-Smith, Langley, Adami, Newell Martin, Balfour, Roy, Vines, Lea, Sherrington, Anderson and Hardy.

In these days of greater specialization the breadth of Foster's interests is often forgotten. It should be remembered that Balfour, whom Charles Darwin declared would be the leader of English biologists, did his first embryological and histological work under Foster's direction. It was to Foster that he turned for counsel in the great dilemma — whether he should give himself to science. It was at Foster's suggestion that master and pupil joined in the making of their helpful introduction to embryology. It was under Foster's clear-sighted encouragement that the fortunate youth broke all the bonds of pupilage and scaled the heights that lead to Fame's serene abode. And it was Foster who wrote his gifted pupil's requiem in the sad days after the frightful hour at the *Aiguille Blanche de Peuteret*.

The great textbook of physiology was a necessary part of Foster's work at Cambridge. His purpose was to reveal to his countrymen the extraordinary discoveries of continental physiologists; but his work did more than this. The beauty of its style, the subdued yet evident intensity of feeling, the just estimate of the correct perspective, the judicial yet kindly attitude, the laboratory atmosphere created by skilful reference to the original workers, the realism that presented without *ex cathedra* pronouncements matters that were still *sub judice*, and the wonderful interest of the discoveries therein related, made this book an inspiration in both England and America.

The same high qualities marked his biography of Claude Bernard, a book that should be in the hands of every student, that he may learn how to weigh material success and even bitter personal grief against the sense of public service, the tenacity of purpose and the imagination that made Bernard one of the glories of France.

Foster's investigations, though excellent, were the lesser part of his contribution to human welfare. He was rather the scholar and interpreter than the investigator. He had, moreover, a keen appreciation of the fact that the progress of physiology depends largely on the provision of a suitable means of publication for research, on suitable guides for teachers and laboratory workers, and on laboratory work by all students. To these ends he devoted much time, as editor of the *Journal of Physiology*, writer of many helps for teachers and organizer of laboratory instruction.

He was mindful, too, that a science cannot take its rightful position in a country except its general interest be safeguarded by men who have the public ear. We owe much to his influence as secretary of the Royal Society and as Member of Parliament. In Parliament and elsewhere he served on many important commissions, such as that on tuberculosis, in which he was greatly interested. His facility as a public speaker was of much assistance in this part of his work. His style was simple and direct, and it was often illumined by flashes of wit.

It is not necessary to assign their relative values to the many activities of his long and useful life, though the attempt might be interesting. Certainly, much should be made of a personality of extraordinary simplicity and charm. Too often the scientist lives a cloistered life, saving his fire to reduce refractory ideas. Foster grudged no energy or had unusual store. He warmed the heart.

The journals have published a photograph of Sir Michael as he might have looked on rising to address the Royal Society: a strong face, deeply lined, kindly and wise. Yet it is not the whole man. It is, so to say, official. The real man is

shown in another photograph. Sir Michael, in an old, old coat,— the choice if not the fruit of wisdom,— is seated on a bench against the rough board wall of a cabin in the Adirondacks. His hand grasps a mountain staff, the symbol of activity. But the good gray head leans comfortably back against the cabin, the historic pipe is in his mouth, and kindly wrinkles, the harvest of many well-spent years, surround his smiling eyes. We shall like to leave him with this air of earned repose. The world has lost a scientist and we have lost a friend.

W. T. P.

Current Literature.

The Journal of the American Medical Association. Feb. 16, 1907.

1. Lieberthal, D. *Lichen Planus of the Oral Mucosa.*
2. Heidingsfeld, M. L. *Myoma Cutis.*
3. *Grant, W. W. *Late Phlebitis following Clean Abdominal Operations.*
4. *Ohlmacher, A. P. *Affections Treated by Artificial Auto-inoculations.*
5. Brown, D. R. *Accurate Modification of Milk.*
6. *Townsend, C. W. *Simplicity in Infant Feeding.*
7. Brown, C. W. M. *Certified Milk in Small Cities.*
8. Lowenburg, H. *Why Percentage Feeding Fails.*
9. Lovering, P. A. *The Alcohol Question in the Navy.*
10. Woodruff, C. E. *The Army Canteen as a Means of Reducing Intemperance.*
11. Crothers, T. D. *Medical Care of Inebriates.*
12. Shrady, G. F. *Some Professional Reminiscences.*
13. Johnston, G. C. *The Ultimate Result of the Roentgen Treatment of Carcinoma of the Breast.*
14. *Barnes, H. L. *Mistakes in the Diagnosis of Pulmonary Tuberculosis.*

3. Grant says that he has been compelled by later observation and experience to modify his formerly expressed opinion that phlebitis after abdominal, rectal or genito-urinary operations is invariably due to infection. In his paper he considers especially that form of phlebitis in the veins of the legs (usually the left leg), and occurring most frequently about two weeks after simple aseptic abdominal operations, without preceding fast pulse, fever, pain or any other premonition. He refers to the statistics of Cordier and Haward and gives the account of a typical case occurring after operation for chronic appendicitis. Grant gives his own opinion that it is probably not septic and that the specific cause or causes are unknown. It is not correct, he thinks, to assume an infection without satisfactory evidence. The cause of the thrombus before the inflammation or of the phlebitis preceding the thrombus is the vital point. It is impossible, he says, to reconcile the facts with the idea that the cause is the recumbent position or the simple ligature or injury of small veins, often in a distant field and on the opposite side of the body, though admitting that the infection need not come from the site of the operation. He believes that there is a general condition affecting the composition of the blood that may and often does exist before operation, which is an essential factor in the cause of the thrombophlebitis in these cases.

4. Ohlmacher thinks that possibly Wright's comparatively simple theory of opsonins and its practical application has been rendered needlessly confusing to the average practitioner and gives his own experience with the use of bacterial vaccines, preferably autogenous, in various surgical conditions. While not neglecting to take the opsonic index when practicable, he was compelled to rely largely on the clinical manifestations as a guide to the repetition and size of dose, always endeavoring, of course, to give the injections at the right time, when the positive phase is beginning to fall and not in the negative phase. As Wright points out, the great causes of failure in previous tuberculin treatment was the giving of too large injections and too frequent repetition of the dose causing a marked negative phase and keeping it up. Ohlmacher thinks that his results might have been even better than they were had he been able to make more systematic opsonic determinations, which often show a fall of resistance before the symptoms indicate it. He has had remarkable success in various types of staphylococcus infections; obstinate cases of acne and furunculosis, impetigo, palmar abscess and in a very distressing case of what had been called psoriasis, but which he thinks was an extraordinary case of staphylococcic dermatitis, and which yielded rapidly to opsonic treatment with an autogenic culture of staphylococcus aureus. He had also very satisfactory results with a case of very annoying bladder infection from the colon bacillus, similarly treated after other treatment had failed. A very striking case was one of sacculated pneumococcus empyema, in which perfect recovery occurred in seven days after two injections following a small puncture. Ohlmacher believes that even the generally condemned method of aspiration would have been sufficient in this case when reinforced by opsonic therapy. Owing to delay in obtaining Koch's new tuberculin, the standard vaccine for tuberculous cases, his experience with tuberculosis has as yet been limited, but he has been able to obtain a strain of gonococcus culture with which he has had striking success in the treatment of gonorrhea and its complications, including gonorrheal rheumatism and conjunctivitis. From what he has already seen, he is prepared to say that with proper artificial auto-inoculation we can obtain constitutional and local improvement in many subacute and chronic affections, entirely beyond anything previously possible in medicine. He believes that we have in this method of bacterial inoculations therapeutic agents of a specificity and potency beyond anything heretofore employed in the treatment of disease, except, perhaps, the diphtheria antitoxin.

6. The advantages of simple, not too formidably mathematical, rules for the percentage of milk feeding of infants is suggested by Townsend. There is less liability of error by the mother or nurse, it is easier for the physician to prescribe, and it is natural to presume that the less the manipulation generally, the better for the milk. It is better to get a clean cow's milk and modify it to suit the case than to try to improve an unclean milk by centrifugalization or Pasteurization, and as the dilution of whole milk would cut down the fat too much, it is necessary to begin with a cream as the basis. He prefers pouring off the top milk as the simplest, and on the whole the safest, method of obtaining the cream and one giving very uniform results. As a rough rule, one may remember that in a quart of milk that has stood at least four hours, the upper 6 oz. contains about 14% of cream, the upper 8 oz. 10%, the upper 12 and 16 oz. about 8 and 6%, respectively. The amount of fat must be regulated by the appearance of the stools, and it is better, as requiring less manipulation, to dilute this top milk with water than to combine a rich cream, a lower or fat-free milk and water. Instead of pure water, a cereal water can be used in even the youngest infants, and some have difficulty in digestion without it. After the age of six months, a cereal modification is better for all infants. It is safest to begin with a mixture weak in all its ingredients and increase the strength gradually. A new-born baby can be put on a mixture of only 3 oz. of the upper 8 oz. of top milk in 20 oz. and the strength increased by adding half an ounce of top milk and abstracting an equal amount of water every second day until 8 oz. of top milk are given in a 20-oz. mixture. Many infants who have failed on much modified milk mixtures will, he says, respond at once when these simple principles are borne in mind. In a note he gives a simple rule for percentage calculation and explanatory formulas for those who care to use the method.

14. Barnes gives an analysis of the histories of 165 patients with tuberculosis admitted at the Rhode Island State Sanatorium for Consumptives, with special reference to the question of early diagnosis and treatment. Only the cases with reliable and complete record were used. He found the presumable duration of the disease averaged 15.4 months, and that 40.9% of the patients

delayed seeking medical advice or treatment, such delay averaging 7.9 months. Forty-six per cent were incorrectly diagnosed, the resulting delay in correct diagnosis averaging 11.3 months. In 18.1% of patients the lungs were examined and pronounced sound, and in 18.7% the incorrect diagnosis was made without sputum examination, though sputum was available. In 2.4% the correct diagnosis was purposely withheld by the examining physician. Barnes regrets that this practice is still followed by some, and holds that it is not warranted by any valid considerations. The failure to diagnose tuberculosis after hemoptysis also is surprisingly common, occurring in 12.7% of the cases here analyzed. Inasmuch as the sanatorium does not receive the worst cases, it seems possible that those it does receive have been more wisely handled than the average of all tuberculous patients in the community, which gives his figures an added significance. He says, "This optimistic and fatal waiting policy should be appreciated. A tuberculous history should be sought for in all lung diseases, and in atypical and doubtful cases of grippe, bronchitis and malaria the diagnosis should promptly be made by tuberculin when other means fail."

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.
FEBRUARY, 1907.

1. *KEEN, W. W. *The Symptomatology, Diagnosis and Surgical Treatment of Cervical Ribs.*
2. *DOCK, G. *Compulsory Vaccination, Anti-vaccination and Organized Vaccination.*
3. ROBINSON, B. *Some Forms of Acute Cardiac Dilatation.*
4. *THAYER, W. S., and MACCALLUM, W. G. *Experimental Studies of Cardiac Murmurs.*
5. FUSSELL, M. H. *Aneurysm of the Aorta, Rupture into the Superior Vena Cava.*
6. HASTINGS, T. W., and HOOBLER, B. R. *The Different Forms of Albumin Occurring in the Urine.*
7. *WEBSTER, A. W. *The Pathology and Treatment of Nephritis.*
8. *EDSALL, D. L., and PEMBERTON, R. *The Use of X-Rays in Unresolved Pneumonia.*
9. BROWN, L., ALLEN, A. H., and LUPTON, E. *A Diphtheria Epidemic at the Adirondack Cottage Sanitarium.*
10. *FOSTER, N. B. *The Chemical Affinity of Mucus for Hydrochloric Acid.*

1. Keen reports a case of cervical rib causing nervous disorder and beginning gangrene of the hand, cured by excision of the rib. He further summarizes the symptoms and clinical findings in cases reported in the literature, with description of his operative technique. Cervical rib is a congenital vice of development probably more common than is recognized. It is crossed by the subclavian artery and the brachial plexus which always lie about it, and are often flattened by pressure against it. It may form a palpable tumor in the neck, but the diagnosis should always be confirmed by the x-ray. Pressure on nerves causes pain of neuralgic character and diminished or perverted sensation. Pressure on the artery may cause small or absent pulse and cold extremities, although gangrene is rare. Atrophy of muscles may occur. In only a small proportion of cases, however, are symptoms of any kind present. The only treatment is excision of the rib. This has been done in forty-two reported cases without a death, and with complete relief in all but a few.

2. Dock believes that our present laws with regard to vaccination are inadequate to insure safety of the community. He urges popular education in the importance of vaccination, and laws to require that vaccination be made a matter of permanent record by authorized officials. Private vaccination, he maintains, should be permitted only under special conditions, with revision of the result by a health officer.

4. Thayer and MacCallum have studied the murmurs produced in the hearts of dogs by various experimental lesions of the valves and other abnormal influences. The murmurs were observed by direct auscultation of the heart with the thorax laid open. The murmurs of aortic stenosis and regurgitation were much the same as observed clinically in human subjects. The murmur of mitral regurgitation was found to be transmitted with greatest intensity into the left auricle; the fact that this is not found in clinical examinations may be attributed to the concealed position of the left auricle in man. In one case, after repeated bleeding and infusion, a dilatation of the heart occurred with distinct aortic and later mitral insufficiency; autopsy showed normal valves. Basic systolic murmurs were easily produced, especially at the pulmonic valve. Here it was found that the slightest pressure upon the conus arteriosus would produce a murmur. Bleeding and infusion also produced basic murmurs, probably by producing low arterial tension and by diminishing the viscosity of the blood. It is suggested that the demonstration of experimental murmurs in the dog would be of great service in the teaching of students.

7. Webster's article is a brief account of the treatment of nephritis on the principles laid down some years ago by von Noorden. The milk diet and ingestion of large amounts of water, formerly so generally advised, are essentially wrong. To limit the work of the kidneys the proteid intake should be limited to a minimum. In acute cases with anuria, absolute starvation may be enforced, with limitation also of the water taken. Later a small amount of milk with cream and cereals may be given. In chronic cases an excess of proteid is to be avoided, but proper nutrition must be maintained. The theory that uremia is due to retention of chlorides in the system is discussed but found wanting so far as present evidence can determine; thus limitation of chlorides in the diet is not advised. The relation of clinical manifestations and pathological findings is discussed, and the variance between the two is emphasized. The treatment other than the dietetic is the same as that usually accepted.

8. Edsall and Pemberton report their experience with the x-rays as a therapeutic measure in three cases of unresolved pneumonia. In the first case consolidation which had persisted for a month after the crisis of a pneumonia disappeared within a week after beginning of five-minute exposures to x-rays. On the second day many râles were noted, and on the fifth day a great decrease in dullness had occurred. In the two other cases results were hardly less striking. The most probable explanation of the influence of the x-ray upon these cases is that digestion or resolution through some ferment action was stimulated by its use. Careful metabolism experiments in the second and third cases showed that following the first exposures a marked increase occurred in nitrogen, chloride and phosphate excretion.

10. Foster has demonstrated that mucus, like albumin and other proteins, is capable in the presence of pepsin of combining with hydrochloric acid. He first suspected this from the finding that the gastric juice from fasting stomachs of animals with Pawlow fistulæ contained combined HCl. He believes that this will explain the variability of the amount of combined HCl in the stomach observed clinically.

THE LANCET.
FEB., 9, 1907.

1. BEEVOR, C. E. *The Diagnosis and Localization of Cerebral Tumors.*
2. DUCKWORTH, D. *Portal Cirrhosis of the Liver.*
3. STEPHENSON, S. *Affections of the Lachrymal Apparatus.*
4. *RAWLING, L. B. *A Case of Sarcoma of the Scapula in a Child Aged Four Years, with Notes on Sarcoma of the Bones of Young Children in General.*
5. MORISON, J. R. *Fibroids of the Uterine Cervix.*
6. *LEEDHAM-GREEN, C. A. *Appendicitis in Typhoid Fever.*
7. DIVINE, T. *Sanitary Condition in Relation to Infantile Mortality.*
8. CAMPBELL, H. *The Role of the Blood Plasma in Disease.*

4. Rawling describes his own case of sarcoma of the scapula, the youngest case on record, and then considers the cases collected from the literature of this subject. Unless the case be diagnosed and operated on at an early date with a very wide extirpation of the tumor, surgical procedures are generally useless.

6. Typhoid fever may give rise to appendicitis in two ways: first, a true typhoid inflammation and ulceration going on to perforation may affect the lymphoid tissue

of the appendix, just as it does any other part of the intestinal tract; and secondly, appendicitis may develop in a patient suffering from typhoid fever in consequence of a general edema and hyperemia of the gut. Needham-Green gives the statistics on this subject, quoting Rolleston, Kelly and H. Christian. He then gives in detail three cases of his own in which the question of appendicitis arose during typhoid. If possible, it is better to postpone operation, although in the early stage of typhoid the prognosis of a simple laparotomy is good. The Widal reaction seldom shows itself sufficiently early to be of value; the blood count may help, but not always; a differential count of the whites is of more importance than the total number of leucocytes, showing in typhoid infection an increase of basophiles; in appendicitis, not due to the typhoid bacillus, an increase of neutrophiles.

British Medical Journal.

Feb. 9, 1907.

1. Broadbent, W. H. *The Toronto Hospital for Advanced and Far-Advanced Cases of Consumption.*
2. Swain, J. *A Retrospect of a Thousand Consecutive Cases of Abdominal Surgery.*
3. *Morton, C. A. *The Claim of the Surgeon to Conduct the After-Treatment of Operation Cases; with Some Remarks on Position and Flatulent Distention after Abdominal Operation.*
4. *Stevens, W. M. *The Dissemination of Intra-abdominal Malignant Disease by Means of the Lymphatics and Thoracic Duct.*
5. Russell, J. W. *On the Temperature in Malignant Disease of the Liver and Bile Passages.*
6. Stewart, J. E. F. *A Pair of Forceps in the Abdominal Cavity for Ten and a Half Years.*

3. Morton makes a strong plea that the surgeon be allowed to conduct the after-treatment of his cases and not let himself be persuaded to turn this all-important part over to the medical attendant. He then speaks of posture as an aid to after-treatment, recommending the semi-recumbent or Fowler's position in practically all cases of abdominal operation, especially if there is sepsis; he speaks of the various means of making the patient comfortable in this position and advises operating with the patient in this position unless there is shock. If this is present the Trendelenburg position must be maintained during the operation and afterwards till all signs of shock have disappeared. He then speaks of the causes and treatment of distension after operation. In most cases this is due to paresis of the bowel and not necessarily to adhesions or a spreading of the septic process. In relieving it he has had the best success with turpentine and suds enemata. Colostomy is a very serious procedure and rarely does good.

4. Stevens concludes from his observations that the thoracic duct plays an important part in the dissemination of malignant intra-abdominal disease. It may act as a simple carrier, or be itself infected. It is remarkable that chylous ascites and dilatation of the lymphatic channels can be so seldom demonstrated. The supra and infra-clavicular glands on the left are enlarged far oftener than is supposed; when they cannot be felt, they can often be demonstrated by careful percussion.

Deutsche Medizinische Wochenschrift, No. 6.

Feb. 7, 1907.

1. Meyer, E. *Hysteria and Earning Capacity.*
2. Krieger and Velden. *Bromural, a New Hypnotic.*
3. *Frey. *Basophilia of the Red Cells as an Early Sign of Chronic Lead Poisoning.*
4. Schuckmann. *Two Cases of Congenital Dilatation of the Colon in Adults.*
5. Rosenthal, B. *Narcosis with the Roth-Draeger Drop Apparatus.*
6. *Stern, C. *The Action of Protargol.*
7. Stein, A. *A Case of Precocious Menstruation.*
8. Winckler, *Removal of a Piece of Bone from the Right Bronchus by Means of Superior Bronchoscopy.*

3. This article deals with the early diagnosis of chronic lead poisoning by means of the detection of basophilia of the red cells. In the early stages symptoms are vague, consisting of anemia with disturbances of digestion and sometimes arthralgia; the examination of the urine for lead at this time is usually negative. Grawitz has found that all cases of lead poisoning show basophilia of the red cells, which appears either in the shape of dots or as a diffuse bluish discoloration when the blood is stained with basic dyes. The only other diseases in which this basophilia is present are pernicious anemia, cancer, sepsis, malaria and intestinal putrefaction; it is inconstant in these diseases. With the elimination of the lead from the system and the recovery of the patient, the basophilia gradually disappears. Frey, in a series of cases of lead poisoning among lead smelters, found this reaction constantly present in pronounced cases and of great diagnostic value in others in which the symptoms were equivocal. It proved also serviceable for prophylaxis, acting as a guide to show what workers should be temporarily removed and given outdoor employment. [This simple test is usually all that is required in practice, and has rendered the tedious examination for lead in the urine superfluous. Thin smears of blood should be treated with Wright's stain or any other similar stain, such as Goldflam's or Leishman's.]

6. According to Stern, the irritating effects sometimes seen after injections of protargol are due to the use of faulty preparations. The solutions should have been recently prepared and without the use of heat. In his experience, protargol remains the best of the many preparations recommended for the local treatment of gonorrhea.

Münchener Medizinische Wochenschrift, No. 6.

Feb. 5, 1907.

1. *Gruber and Futaki. *Natural Immunity towards Anthrax and the Origin of Bacteriocidal Substances.*
2. Hamburger, F. *Antitoxin and Albumin.*
3. Kehrer, F. A. *Nervous Symptoms during the Passage of Stomach Contents into the Intestine.*
4. Schumm, O. *The Demonstration of Blood in the Feces.*
5. *Fricker, E. *Two Cases of Eosinophilia of the Feces.*
6. Hartmann, F. *Twelve Cases of Mastitis treated by Suction.*
7. Krencker, E. *A Case of Subcutaneous Emphysema in Phthisis.*
8. *Bleibtreu, L. *Apparent Macrocheilia in Hysteria.*
9. *Brassert, H. *Argyll-Robinson Pupils in a Case of Fracture of a Cervical Vertebra.*
10. Pickenbach. *Stenosis of the Pylorus due to Chronic Duodenal Ulcer, Cured by Gastro-enterostomy.*
11. Walther, H. *Shall Midwives be Supplied with Rubber Gloves?*
12. Schiele, G. W. *Lead Boxes for X-ray Tubes.*
13. Weil, E. *Explanation of the Tuberculin Reaction by the Presence of Antituberculin in the Tuberculous Focus.*

1. This valuable contribution by Gruber and Futaki deals with the question of immunity towards anthrax in animals. As is well known, hens and dogs are naturally immune to this disease, while rabbits, guinea pigs and rats are very susceptible. The leucocytes of the latter anmals devour anthrax bacilli *in vitro* readily, but in successful inoculation no phagocytosis occurs. This they found to be due to the fact that in the animal organism the bacilli become invested with thick capsules, which effectually protect them from phagocytosis and from [bacteriolysins; they no longer attract the leucocytes. Experiments with subcutaneous injection of anthrax bacilli showed in fact that in the dog and hen the germs are quickly destroyed at the site of inoculation before capsules can be produced, but that in susceptible animals a rapid reproduction with capsule formation takes place. The destruction of bacilli took place outside the cells, not by phagocytosis. This seems strange, for the serum of hens has little bacteriocidal action, while that of the susceptible rabbit is quite powerful. The authors show that this apparent contradiction can be explained. They found that the blood plasma of the rabbit contains absolutely no bacteriolysins, and that the bacteriocidal substances come from the blood plates after clotting. The difference between the behavior of hens and rabbits towards the anthrax bacilli they found to be due to differ-

ences in the lymph. The subcutaneous lymph of the hen kills off anthrax bacilli with great rapidity, whereas that of the susceptible animals is almost inert. The bacteriolysins in the lymph are shown to be derived from the leucocytes in great quantity under the influence of a substance in the lymph which they call a stimulin. In the lymph of the rabbit there is little stimulin, but in edema fluid obtained by the use of Bier's passive congestion, it is present in considerable quantities; this explains in part the efficacy of Bier's method. The anthrax bacilli protect themselves against the action of the bacteriolysins by the production of capsules, and the result of an infection depends largely upon whether the bacilli are destroyed before there is time for capsule formation.

5. Fricker reports two cases in which there were numerous eosinophiles and Charcot-Leyden crystals in the feces. The first was in enteritis in a child due to infection with trichocephalus; the second, a case of proctitis in an adult. [*Cf.* Neubauer and Stäubli's article abstracted in BOSTON MEDICAL AND SURGICAL JOURNAL, Jan. 3, 1907, page 29.]

8. Bleibtreu reports a case of apparent macrocheilia occurring in hysteria. The snout-like appearance of the lips was due not to chronic inflammation as in true macrocheilia, but to hysterical contracture, as was shown by the presence of hemi-anesthesia and loss of the senses of smell, taste and hearing on one side, and lastly by the fact that recovery took place under suggestive treatment.

9. In Brassert's case fracture of the second cervical vertebra was apparently the cause of the appearance of Argyll-Robinson pupils. Several similar cases have been recently reported, and lesions here have been found in tabes, general paresis, and other spinal diseases accompanied by A-R pupils, so that it appears very probable that the center governing the light reflex is situated in the cervical cord, probably in Bechterew's "intermediate zone," between the columns of Goll and Burdach.

BERLINER KLINISCHE WOCHENSCHRIFT, No. 51.

DEC. 17, 1906.

1. *HILDEBRAND, O. *Experiences in the Treatment of Goiter.*
2. *OPPENHEIM, H., and KRAUSE, F. *Tumor of the Occipital Lobe of the Brain Cured by Operation.*
3. ASCOLI, M. *Puncture of the Brain for Diagnostic Purposes.*
4. SENGER, E. *Brain Surgery.*
5. *JOHNSEN. *A Giant Renal Stone Removed by Operation.*
6. STERN, A., and DOLAN, E. *Remarks on the Surgical Treatment of Injury to the Abdomen by Blunt Force.*
7. KORFF, B. *Morphin-Scopolamin Narcosis.*
8. EICHLER, F. *Modification of Bier's Suction Apparatus when used to secure Blood for Serum Diagnosis.*
9. LESSING. *On Hernia.*
10. JOACHIMSTHAL. *Address on Waldeyer and v. Bergman.*

1. The symptoms accompanying a goiter are those of pressure either on trachea, esophagus, or blood vessels. In certain cases the goiter may grow downward thus becoming substernal or even subcostal, in which case it may even press on the arch of the aorta. Though difficulty in breathing due to tracheal obstruction is frequent, hoarseness or paralysis of the laryngeal muscles is of rare occurrence. A peculiar and characteristic tone of the voice is not unusual, however. The usual form of goiter found in young subjects is a parenchymatous hypertrophy, while in the aged the condition is usually one of cystic degeneration which may be of the colloid form. Even the smaller goiters may cause marked dislocation of the arteries and veins in their neighborhood. Hildebrand administers iodine internally in cases of goiter occurring in young people where the tumor is of the parenchymatous type; in the cystic type of older individuals iodine is manifestly useless. Operative procedures are either extirpation or enucleation of the tumor. The first method is the more common, since only goiters of cystic type can be successfully enucleated. The first step after reaching the tumor is the ligation of the superior and inferior thyroid arteries. In the hands of Hildebrand the operation is done usually with local anesthesia. Under these conditions it is much easier to locate and avoid the recurrent laryngeal nerve. The mortality of such operations is only .3 or .5 of 1%. In marked contradistinction to the benign goiters, as regards the prognosis, are those due to either sarcoma or carcinoma. Metastases are very readily formed, and when the disease has passed the limits of the capsule the operation is exceedingly difficult. The mortality in malignant cases is 66.5%. For this reason Hildebrand advises the immediate operative removal of every goiter which can be demonstrated to be increasing in size or which gives any symptoms.

2. The case of a man of thirty-five years is reported, who suffered from repeated attacks of headache dizziness and vomiting, followed by right hemianopsia, hemiataxia and hemiparesis. Oppenheim made a diagnosis of neoplasm of the left occipital lobe, near or pressing on the tentorium. At operation, which was done in two steps, Krause enucleated a spindle-celled sarcoma about 3 by 5 by 6 cm. in dimensions. Though there was marked rise in pulse and temperature after the operation, the result four months later was a complete cure.

5. Johnsen reports a case of kidney stone, removed by Pelz, which weighed 339 gm. The longitudinal circumference was 33.5 cm.; the horizontal, 28.5 cm. It was made up of ammonio-magnesium phosphates with a little phosphoric acid.

DEC. 24, 1906.

1. *FRAENKEL, B. *The Theory of Ozena.*
2. SCHÜTZE, A. *The Forensic Value of the Method of Absorption of the Complement, as practised by Neisser and Sachs.*
3. BING, H. J. *The Measurement of the Blood Pressure.*
4. SCHULZE, W. *The "Silver" Spirochete.*

1. Fraenkel reviews the various theories as to the nature of ozena, and points out that we are not much farther advanced in our knowledge than thirty years ago, when he first clearly defined this disease. The Abel bacillus mucosus, which is identical with Friedländer's pneumobacillus and with the bacillus of rhinoscleroma, is certainly not the cause, though often present in the secretions.

Certain Diseases of the Peritoneum. MUMFORD (N. Y. *Med. Jour.*, Jan. 12, 1907) summarizes the subject of peritonitis in its various forms with special reference to their surgical treatment. Acute peritonitis may be localized or diffuse. The former is usually recognized by the presence of a mass with tenderness, fever, etc.; the treatment is simply to open and drain. Diffuse peritonitis is where the inflammation forms no limiting adhesions. Its causes and sources are various but the great majority are traceable to infections (colon or streptococcus) from the alimentary tract. All cases should be operated upon except those obviously moribund. The operation, however, should be reduced to a minimum in time and extent. Handling and wiping of viscera is to be avoided. Irrigation is unnecessary except when the abdominal fluid is thick or contains numerous masses of fibrin. The abdomen should be opened as low as possible and the primary disease sought out and removed. Drainage through the abdominal wound and from the pelvis through a stab-wound above the pubes is essential. Fowler's position (the patient sitting as nearly upright as he can be maintained) is strongly recommended in the after-treatment. Introduction of water into the rectum by Murphy's "seeping" method (large amounts of salt solution being made to flow almost continuously into the rectum so slowly that they are absorbed as fast as they enter) aids the drainage of the peritoneum, as well as stimulating the heart and kidneys and supplying body fluid. With this treatment there is reason to hope that the mortality may be kept below 30%. The forms of chronic peritonitis are the exudative, the adhesive and the tuberculous. The first two are little recognized, and as a rule are to be treated medically, although operation is the only means of relieving adhesions. Tuberculous peritonitis is frequently benefited by operation, the benefit depending mainly upon the possibility of removing the source of the infection (*e. g.*, a Fallopian tube), the degree of adhesions, and the reparative stimulation resulting from the operation.

Medical treatment of the tuberculosis must be resumed as soon as possible.

Chronic Tuberculous Cecal Tumor. TOMITA (*Wien. Klin. Woch.*, No. 52, 1906) reports four cases of this affection and discusses the clinical picture. The process is almost invariably confined to the ileo-cecal region and leads to stenosis of the bowel. The primary lesion is usually a tuberculous ulcer; the wall of the intestine becomes greatly thickened, chiefly owing to the production of fibrous tissue. As a rule no tuberculous lesions can be found in other parts of the body, at least during life. The onset is insidious, the early symptoms consisting in disturbances of digestion; later an oval hard tumor appears in the right iliac fossa and there are symptoms of stenosis, such as frequent colicky pains accompanied by borborygmi, sometimes by local distension of the bowel. The treatment is operative and consists in resection of the tumor where this is practicable, with removal of the mesenteric glands, if these are also affected. A complete cure may be expected in a large proportion of cases thus treated.

Correspondence.

A PLEA FOR THE CHILDREN.

BOSTON, Feb. 28, 1907.

Mr. Editor: In the last report of the Committee on the Prevention of Tuberculosis of the Charity Organization Society of New York there is a significant sentence: "For it almost seems that in the school child lies our chief hope for preventing tuberculosis. We must teach the child what tuberculosis is and how to prevent it and not wait until our task comes to be that of curing this same child grown up to be one more of the city's thousands sick of a preventable disease." This strikes at the heart of a serious question. Why is Boston, who prides herself on her school system, so far behind France and Germany in caring for these children? In Paris, Grancher, at the head of a committee investigating school conditions, found that out of 4,226 boys and girls 15% were tubercular; only three had open tuberculosis, the others being in what is called the pretubercular stage with persistent feeble breathing at one apex accompanied by signs of debility, anæmia, glands, slight cough, tendency to catch cold, etc. Whether or not these children are tubercular is open to discussion; exactly what constitutes the pretubercular stage is a matter on which opinions differ, but no one will for a minute deny that it is from among this group of children showing signs of debility that the consumptives of the next generation are to be numbered. France is meeting this problem, of how properly to dispose of these children, in two ways. First, so-called *cantines scolaires*, lunches free or at a nominal cost, are being provided these children at school; and second, by establishing outside of large cities fresh air schools, "*écoles de plein air*," such children and the children of tuberculous parents can be taken and given their lessons under better hygienic conditions until they are strong enough and old enough to resist infection at home. Paris and Marseilles are leading in this movement. In England, Manchester has adopted this system and the city council has gone on record as saying that a system of compulsory education can only be run at a loss when those for whom it is intended are sent hungry and ill-fed to school. In Germany there are *Wald Schule*, forest schools, open-air academies outside the cities in the parks and forests where weak and sickly boys and girls can grow well and strong, reciting and studying in the open air or in shacks built for the purpose, until the critical period is past and they have entirely regained their health.

In Boston the great difficulty is to get hold of the children. Could we but get these pale and wan little ones in our hands, hospitals, dispensaries, the city itself would be forced to provide some means of caring for them properly. That is a question which at present can be left to take care of itself. The Boston Society for the Relief and Control of Tuberculosis has recently started a movement to have a careful examination made of all the children in all families in which any member has tuberculosis. This is a step in the right direction but, after all, even if carried out to the limit this will reach only a small class of children. The writer feels strongly that it is the physicians who inspect the schools, the nurses who help them and, most important of all, the teachers themselves who must see to it that all the school children are examined and that proper treatment is given to those who need it. How much does school inspection amount to at present? More than it ever has before but certainly little enough at the best. Under the present system as it has been explained to the writer by two of the school doctors only those pupils are examined who have some definite complaint or whose illness is so noticeable that it strikes the teacher's attention at once. Weak eyes, diseased ears, crooked backs are usually looked for and sometimes found; the infinitely more important question of the child's general health and constitutional vigor is neglected. There is no regular inspection of all the children. The writer has under his charge at present at the hospital a child, manifestly tubercular in the closed stage, who had never been examined while still attending school. This child's condition was such that at no time did she have any acute complaint to make, which would call the teacher's attention to the fact that she was sick. She was kept at school until her mother, a Jew woman with keener eyes than the doctor, nurse, or teacher, saw that she was not well and took her to the hospital. This girl, had she been examined in the regular routine at the school, would have been sent to the hospital a long time before she was. Is there any reason to believe that a careful examination of our school children would reveal any better condition of things than that found in the Paris schools? Probably not. Would it not be a matter of great economic saving to select these children now, warn their parents of their danger and train them to habits of fresh air, cleanliness and right living instead of waiting until later when they may become openly consumptive.

If this important duty of selecting what children are to be examined by the doctor is to be left to the teachers, ought not some steps be taken to instruct these teachers what their duties are in this matter and how best to perform them. In Philadelphia this is already being done. Cannot something of this kind or something better be instituted in Boston? In a recent number the *Lancet* said editorially: "Unless medical inspection of schools can include some method of making parents obey some of the simpler rules of hygiene, its benefits great as they are will be but a tithe of what they might be." This is putting it very mildly. It should read, "some method of making parents obey and teachers as well as parents instruct their children in the simple rules of hygiene."

There is a bill before the present legislature to provide thirty school nurses to help the school physicians in their work. This will do a great deal in solving the problem, providing these nurses are properly trained and thoroughly understand that weakness, pallor and debility are not normal in children and that it is more important for children in this condition to learn the value of fresh air and proper food than all the reading, writing and 'rithmetic in the world. The children of to-day are the citizens of to-morrow; the weaklings among these children are the consumptives of the future. Let us look to the future and not go ahead blindly in the present; if we are to have school inspection at all let us have a system that really does inspect.

Truly yours,
JOHN B. HAWES, 2d, M.D.,
Assistant to Physicians to Out-Patients,
Massachusetts General Hospital.

SLEEPING SICKNESS: AN ERROR.

BOSTON, March 2, 1907.

Mr. Editor: Permit me respectfully to call attention to an error of situation, on p. 286 of the JOURNAL, under "Miscellany," where you quote from the *British Medical Journal*, which in turn quoted "Semaine Médicale" about the "Sleeping Sickness in *East* Africa." It should have been written *West* (for East). All those spots affected are on the "West Coast of Africa."

Truly yours,
E. D. SPEAR, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 23, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York			Quincy	8	2
Chicago	709	199	Waltham	10	1
Philadelphia	—	—	Gloucester	11	1
St. Louis	—	—	Pittsfield	10	2
Baltimore	211	37	Brookline	7	1
Cleveland	—	—	North Adams	13	2
Buffalo	—	—	Chicopee	4	3
Pittsburg	—	—	Northampton	10	—
Cincinnati	—	—	Medford	1	—
Milwaukee	—	—	Beverly	5	3
Washington	—	—	Hyde Park	5	—
Providence	108	—	Newburyport	—	—
Boston	225	53	Leominster	5	2
Worcester	40	10	Melrose	3	0
Fall River	52	13	Woburn	7	1
Cambridge	31	11	Marlborough	4	0
Lowell	42	13	Westfield	5	2
Lynn	16	2	Peabody	—	—
New Bedford	33	9	Revere	3	2
Springfield	24	6	Clinton	5	1
Lawrence	35	13	Attleboro	5	1
Somerville	18	6	Adams	4	1
Holyoke	22	8	Gardner	8	4
Brockton	21	6	Milford	7	—
Malden	9	5	Weymouth	3	0
Salem	17	6	Framingham	—	—
Chelsea	11	0	Watertown	3	0
Haverhill	10	4	Plymouth	—	—
Newton	8	4	Southbridge	5	1
Fitchburg	10	—	Wakefield	—	—
Taunton	14	3	Webster	—	—
Everett	9	4			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED FEB. 27, 1907.

SPRAGUE, E. K., passed assistant surgeon. Granted leave of absence for two days. Feb. 26, 1907.

BOGGESS, J. S., passed assistant surgeon. Relieved from duty at Stapleton, N. Y., and directed to report to the Chief Medical Officer, Ellis Island, N. Y., for temporary duty, after which to proceed to St. John, New Brunswick, for exclusive duty in connection with the examination of aliens. Feb. 23, 1907.

CREEL, R. H., assistant surgeon. Granted leave of absence for one month. Feb. 26, 1907.

MILLER, W. W., assistant surgeon. Granted leave of absence for twelve days from February 19, on account of sickness. Feb. 27, 1907.

BULLARD, J. T., acting assistant surgeon. Granted leave of absence for thirty days from Feb. 21, 1907. Feb. 20, 1907.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted extension of leave of absence for fourteen days from Feb. 18, 1907. Feb. 20, 1907.

MCCONNELL, E. F., acting assistant surgeon. Granted leave of absence for thirty days from Feb. 25, 1907. Feb. 26, 1907.

MORRIS, G. A., pharmacist. Department letter of January 31, granting Pharmacist Morris leave of absence for fifteen days, amended to read for eleven days only. Feb. 26, 1907.

RESIGNATION.

MR. A. M. THOMAS resigned as pharmacist of the third class, effective Feb. 23, 1907.

REMOVAL.

PHARMACIST C. H. WOODS removed from the Service, effective Feb. 28, 1907. Feb. 20, 1907.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MARCH 2, 1907.

G. P. LUMSDEN, medical inspector. Ordered to the Naval Recruiting Station, Indianapolis, Ind.

H. C. CURL, surgeon. Detached from special duty in the Bureau of Medicine and Surgery, Navy Department, and ordered home to wait orders.

H. E. ODELL, surgeon. Commissioned surgeon from Sept. 6, 1906.

R. H. MICHELS, passed assistant surgeon. Commissioned passed assistant surgeon from Oct. 8, 1906.

E. S. BOGERT, JR., surgeon. Detached from the "West Virginia" and ordered home.

E. H. MARSTELLER, surgeon. Detached from the "Franklin" and granted sick leave for three months.

I. S. K. REEVES, passed assistant surgeon. Discharged from treatment at the Naval Medical School Hospital, Washington, D. C., and ordered to the "Franklin."

A. HAMMAR, pharmacist. Discharged from treatment at the Army General Hospital, Fort Bayard, N. M., and ordered home to wait orders.

ARMY MEDICAL CORPS EXAMINATIONS.

Preliminary examinations for appointment of assistant surgeons in the army will be held on April 29 and July 29, 1907, at points to be hereafter designated.

Permission to appear for examination can be obtained upon application to the Surgeon-General, U. S. Army, Washington, D. C., from whom full information concerning the examinations can be procured. The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to the localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examinations of April 29, applications must be complete and in possession of the Surgeon-General on or before April 1. Early attention is therefore enjoined upon all intending applicants.

There are at present twenty-five vacancies in the Medical Corps of the Army.

RESIGNATION.

DR. E. P. JOSLIN has resigned as physician to the House of the Good Samaritan.

APPOINTMENT.

DR. ROGER I. LEE has been appointed physician to the House of the Good Samaritan to take the place of Dr. E. P. Joslin, resigned.

BOOKS AND PAMPHLETS RECEIVED.

Prostatectomy in Two Stages: A Conservative Operation with Minimum Hazard. By Charles H. Chetwood, M.D. Reprint.

Fractures of the Spine, with Report of Two Cases Terminating in Recovery. By W. Page McIntosh, M.D. Reprint.

An Experimental Study into the Cause of the Increased Portal Pressure in Portal Cirrhosis. By Frederick C. Herrick. Reprint.

Diseases of the Lungs. Designed to be a Practical Presentation of the Subject for the Use of Students and Practitioners of Medicine. By Robert H. Babcock, A.M., M.D. Illustrated. New York and London: D. Appleton & Co. 1907.

State of Rhode Island and Providence Plantations. Special Bulletin of the State Board of Health. Sanitary Legislation in the United States enacted during the Year 1906. Providence. 1906.

Biographic Clinics, Essays Concerning the Influence of Visual Function, Pathologic and Physiologic, upon the Health of Patients. By George M. Gould. Vols. IV and V. Philadelphia. P. Blakiston's Son & Co. 1906.

Text-Book of Psychiatry. A Psychological Study of Insanity for Practitioners and Students. By Dr. E. Mendel. Authorized Translation edited and enlarged by William C. Krauss, M.D. Philadelphia: F. A. Davis Co. 1907.

A Study of the Human Blood-Vessels in Health and Disease. A Supplement to "The Origin of Disease." By Arthur V. Meigs, M.D. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1907.

Annual Report of the Surgeon-General of the Public Health and Marine-Hospital Service of the United States for the Fiscal Year 1906. Washington. 1907.

The Influence of Inebriety in Railroad Accidents. By Henry O. Marcy, A.M., M.D., LL.D. Reprint.

Original Articles.

TUBERCULOUS SCLERITIS, A COMMONLY UNRECOGNIZED FORM OF TUBERCULOSIS.*

BY F. H. VERHOEFF, A.M., M.D.,
Pathologist and Assistant Ophthalmic Surgeon, Massachusetts Charitable Eye and Ear Infirmary.

The etiology of scleritis has always been one of the obscure subjects in ophthalmology. At the present time, perhaps the view in regard to it most generally held is that the disease is dependent upon a rheumatic diathesis. This belief has come about not on account of any positive evidence in support of it, but probably on account of the tendency in the past to assign this cause to any disease of obscure nature. It has been recognized that scleritis in rare instances may be due to syphilis, and that it may occur in tuberculous individuals, where, however, it has not been regarded as in itself a tuberculous process. It has also been recognized that tuberculosis of the sclera may rarely occur, although it has not been thought that the condition was related to scleritis in its typical form. The few anatomical and bacteriological examinations that have been made in cases of scleritis have not seemed, heretofore, to throw any light on the etiology of the disease. Recently, in connection with the use of tuberculin, I have made some observations in a series of cases that have convinced me that scleritis is almost always a tuberculous process, that tuberculous scleritis presents certain distinctive features and that in cases in which the proper treatment can be carried out recovery may be confidently expected.

Although a considerable number of cases have now been reported in which tuberculin has been successfully used in the diagnosis and treatment of other forms of ocular tuberculosis,[1] especially tuberculosis of the iris, cornea, and conjunctiva, its use in cases of scleritis seems to have been almost entirely neglected. In fact, I have been able to find the report of only two cases of scleritis in which both a general and local reaction were obtained. In one of these cases, that of Wagner,[2] the inflammation entirely subsided within six weeks under treatment with tuberculin. The other case was reported by Czermak in the discussion of v. Hippel's paper on the treatment of ocular tuberculosis with tuberculin.[3] In the same discussion Sattler stated that he had treated two cases of episcleritis with tuberculin T.R., presumably with good results. Von Hippel [3] has himself reported two cases of scleritis in which highly satisfactory results followed injections of tuberculin T.R., but he did not state that a tuberculin reaction was obtained in either.

The cases in which my observations were made were only thirteen in number, but their significance is increased by the fact that they were unselected cases of scleritis, and included all those that came under my charge during my services in the out-patient clinics of the Infirmary and Carney Hospital during the past year. In one of the cases the diagnosis was made and treatment with tuberculin carried out by Dr. G. S. Derby,[4] working independently, before the patient came under my care. The cases were all tested with subcutaneous injections of Koch's old tuberculin, and with the exception of two cases were all admitted to the hospital for this purpose. A positive general reaction was obtained in all cases, and a local reaction in the eye in nine cases. Where the reaction was at all doubtful, the injection was always repeated with a larger dose.

The control temperatures, which in every case were taken during the twenty-four hours preceding the tests, were always within normal limits. The method finally adopted was to give an initial dose of 1 mg., then if necessary 1 mg., and finally 10 mg., at intervals of forty-eight hours. The maximum dose of 10 mg. was necessary in only four cases, but in two others it was used to obtain a local reaction. The lowest febrile reaction obtained was 100.3° in three cases. The highest was 105° in one case, the next highest 104° in two cases. In the other cases the reaction varied between 101° and 103°. The shortest time that elapsed before the height of the reaction was reached was nine hours (105°), the longest, forty-eight hours, and the average time twenty-two hours.

As just stated a local reaction was observed in 9 cases. In only one of these was the reaction slight and possibly open to doubt. In this case it followed an injection of 1mg. and was accompanied by a febrile reaction of 100.7°. Forty-eight hours later a second injection of 10 mg. was given which produced marked constitutional symptoms and a temperature of 105°, during the continuance of which the eye not only showed no reaction but became decidedly less inflamed and remained so. The local reaction in the other cases consisted in an increased chemosis and congestion of the affected region, and where keratitis was present, sometimes in an increase in the corneal infiltration. Except in one recent case, the local reaction quickly subsided leaving the eye more or less improved.

All of the patients were females, which is in accordance with the established fact that scleritis is more common in this sex. The youngest was aged eleven years, the oldest, forty-six years, and the average age was twenty-six years. During the time I saw them the scleritis was active in one eye only, but in three cases there were corneal opacities in the other eye, which, judging by their appearance and by the statements of the patients, were due to a previous inflammation of the same nature. With the exception of one case the patients were well nourished and apparently in good health, aside from the ocular trouble. Two of the patients stated that they had formerly

* Read before the Boston Society of the Medical Sciences, Jan. 15, 1907.

[1] For a review of the literature on the use of tuberculin in the eye, see paper by W. E. Gamble and E. V. L. Brown, Jour. Am. Med. Asso., Oct., 1905.

[2] Wagner: Münch. med. Wochenschr., 1891, No. 15, p. 266, No. 16, p. 286.

[3] v. Hippel: Bericht. d. Versamm. d. Ophthal. Gesell. zu Heidelberg, 1905, p. 136, and Arch. für Ophth., 1904, lix, i, p. 1.

[4] Dr. Derby informs me that more recently he has also obtained a local and general reaction in another case of scleritis.

suffered from "rheumatism," possibly tuberculous arthritis. A thorough physical examination was made in each case, but evidences of tuberculosis in the lungs or elsewhere were made out in only three cases. One of these was a child eleven years of age, who showed enlarged cervical glands and some signs of pulmonary involvement, but no tubercle bacilli in the sputum.[5] The second case, aged twenty-eight, gave evidences of an old process, probably healed, at the apex of the right lung, while the third case, aged thirty-nine, showed slight signs of incipient tuberculosis at the apices of both lungs. In the latter case there was no definite reaction to tuberculin in the eye, and during the general reaction the patient complained of severe pains in the mediastinum. There was a definite family history of tuberculosis in only two cases. One of these was the child just referred to, whose twin sister and both of whose parents had died of pulmonary tuberculosis. In the other case the father died of Addison's disease at the age of sixty years, while a brother, who had suffered from Pott's disease in early childhood, was attacked by scleritis at the age of fifteen years, which involved first one and then the other eye.

The cases were all such as are commonly met with, and conformed to the classical description of anterior scleritis. In two of the cases the inflammation was apparently more superficial than in the others and would have come under the arbitrary classification of episcleritis. All of the cases showed more or less definite nodules and thus presented what is sometimes distinguished as the nodular form of scleritis. During the subsidence of the affection, however, after the nodules had disappeared, the diffuse form was often simulated, so that it is probable that there is no real distinction between the two forms. The nodules of scleritis seldom merit the name, since they most often appear simply as elevated areas in the sclera. They usually reach a considerable size and are situated at some distance from the cornea, most often, perhaps, where the anterior perforating vessels enter the globe. In addition to these larger well-known elevations, I have frequently noticed the occurrence of much smaller nodules which are situated beneath the conjunctiva and form the centers of small congested areas. At some period of the disease they were observed in all except three of the cases here reported. They vary from less than one to several millimeters in size. The smaller ones are almost perfectly translucent, the larger are apt to be more or less opaque and yellowish in color. They usually occur in the vicinity of one of the larger elevations, sometimes immediately upon it, but are not necessarily confined to this situation. Sometimes they occur near the limbus, where they may be mistaken for phlyctenules, but I have never seen them exactly on the limbus. Frequently they border on a small blood vessel. When an attempt is made to excise one of them, a small white spot is left behind in the sclera.

No doubt these small nodules have also been noted by others. Vossius[6] almost certainly refers to them, and Fuchs in his textbook probably also refers to them when he speaks of small hard nodules which disappear without disintegrating. So far as I can ascertain, however, attention has not hitherto been called to what I believe is their chief peculiarity, namely, their tendency to appear and disappear within a very short time, within less than a week, for instance. The histological examinations which I made of these nodules, in four cases, showed that the essential lesion was a focal proliferation of epithelioid cells, among which an occasional giant cell occurred, surrounded by an infiltration of lymphoid and plasma cells. (Figs. 1 and 2.) The vessels in the neighborhood showed perivascular infiltration with chronic inflammatory cells and the sub-epithelial tissue showed a similar infiltration in a greater or less degree. Caseation was entirely absent. Numerous sections, specially stained for the purpose, were unsuccessfully examined for tubercle bacilli. This result was not unexpected, since it is notoriously difficult to find the bacilli even in very active lesions. With the exception of the absence of caseation, these nodules thus had the structure of small tubercles. This being the case it was difficult to understand how they could disappear so quickly. An explanation was apparently found in the fact that the sub-epithelial tissue above the focal area was markedly edematous, so that it must have been the localized edema to which the appearance of the nodules as seen by the naked eye was mainly due. The color of the nodules, however, was probably dependent upon the amount of infiltration with lymphoid cells. No doubt, therefore, the sudden appearance or disappearance of these nodules is not due to changes in the size of the areas of epithelioid cells, but to the state of activity of the tubercle bacilli within the latter. When the resistance of the patient is low, the bacilli take on renewed activity and a localized edema results which again subsides when the resistance rises. Six times I have seen this phenomenon occur as a part, apparently, of a tuberculin reaction. On account of the foregoing considerations, therefore, I now regard the occurrence of one of these small nodules in a case of scleritis as alone sufficiently conclusive evidence of the tuberculous nature of the process.

In all except two cases interstitial keratitis was present at the time the patients came under my observation, and in three cases there was a sluggish iritis that had led to posterior synechiæ. The keratitis, at least when in an active stage, seemed always characteristic. It consisted of a deep infiltration of the cornea, usually but not always extending out from the sclera on the affected side, which showed one or more punctate areas of greater density. Sometimes a punctate area was observed first in the clear cornea and

[5] I am indebted to Dr. F. T. Lord for the clinical notes on this case. The patient was referred by him from the Channing Home to the Infirmary, on account of a local reaction in the eye following an injection of tuberculin. In most of the other cases the general physical examination was made in the Out-Patient Department of the Massachusetts General Hospital. Two cases were kindly examined for me by Dr. J. H. Pratt, and three cases by Dr. W. Tileston.

[6] Vossius: Ophth. klin., iv, 1900.

was afterwards surrounded by a hazy zone which increased or decreased apparently in accordance with the severity of the process. The variation in the density of the diffuse infiltration was always more apparent than in that of the punctate areas. Although I have had no opportunity to examine one of the focal areas in the cornea microscopically, it seems safe to assume that they correspond in nature to those in the sclera, that is to say, they are small tuberculous foci which become quiescent or active according to the resistance of the patients. Another characteristic feature of the corneal opacities was their

other details of importance. Twice weekly the patients visited the clinic where they received injections of Koch's old tuberculin. Each at first received a dose considerably below that to which she had reacted, and this was slowly increased so long as the eye did not react or the injection was not followed by a rise in temperature. The highest dose reached was 10mg. in one case. Under this treatment all four of the patients steadily gained in body weight and the ocular inflammation in each case entirely subsided within six weeks to two months.[7] The remaining four cases have not yet been under



FIG. 1. Nodule in episcleral tissue, showing focus of epithelioid cells and marked edema of the subconjunctival tissue. The distended lymph spaces are well shown. There is very little infiltration with lymphoid and plasma cells. (Photo, x 37, made by Mr. L. S. Brown of the Clinico-path. Laboratory, Massachusetts General Hospital.)

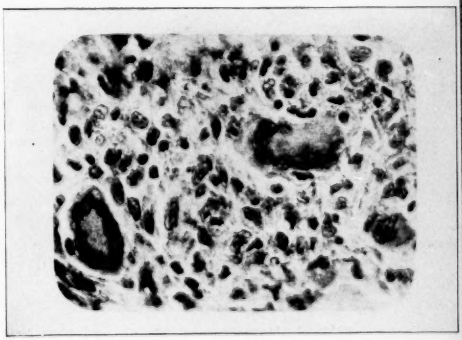


FIG. 2. Nodule from another case of scleritis, showing giant cells among the epithelioid cells. (Photo, x 500, made by Mr. L. S. Brown.)

patients lived it was possible to adopt more desirable measures. The patients were directed to give up work, including household duties of any kind, and for the first two or three weeks to rest and take as much nourishment as possible. At night they slept in rooms with the windows open and during the day reclined in couches or hammocks in the open air, taking care to be well protected from exposure to cold. Later, when the ocular condition improved, a certain amount of exercise was permitted. Each patient kept a record of her temperature and weight and any

there was no local reaction, although previously the latter had been obtained with a smaller dose. It is noteworthy, too, that the general physical examination in this case was entirely negative.

It is possible, if not highly probable, that these belong to the class of cases in which healed tuberculous lesions are found at autopsy without having been suspected during life. Certainly, the well-known frequency of such cases could easily account for the total number of scleritis

[7] One of the patients discontinued the treatment against advice and one month later had a recurrence of the inflammation.

suffered from "rheumatism," possibly tuberculous arthritis. A thorough physical examination was made in each case, but evidences of tuberculosis in the lungs or elsewhere were made out in only three cases. One of these was a child eleven years of age, who showed enlarged cervical glands and some signs of pulmonary involvement, but no tubercle bacilli in the sputum.[5] The second case, aged twenty-eight, gave evidences of an old process, probably healed, at the apex of the right lung, while the third case, aged thirty-nine,

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[6] Vossius: Ophth. klin., iv, 1900.

was afterwards surrounded by a hazy zone which increased or decreased apparently in accordance with the severity of the process. The variation in the density of the diffuse infiltration was always more apparent than in that of the punctate areas. Although I have had no opportunity to examine one of the focal areas in the cornea microscopically, it seems safe to assume that they correspond in nature to those in the sclera, that is to say, they are small tuberculous foci which become quiescent or active according to the resistance of the patients. Another characteristic feature of the corneal opacities was their slight tendency to become vascularized. New vessels were slow to make their way into the cornea, and the vascularization was always insignificant when compared to the density of the opacity or to the amount of inflammatory reaction. This was in accord with the tuberculous nature of the process since tuberculous lesions in general show a comparatively slight tendency toward vascularization. The new vessels, however, were apt to be large, although few in number. The scleritis often cleared up more rapidly than the keratitis, or at least appeared to do so, so that the eye sometimes showed simply a marked corneal infiltration with a slight circumcorneal injection. Such a condition, seen for the first time, might easily be mistaken for primary keratitis. In none of my cases has the corneal opacity entirely disappeared, but the extent to which it has cleared in some of them is remarkable and in all it has decreased in density. A considerable residual opacity, however, is of course to be expected in all the cases of long standing.

In the treatment of these cases one of the chief difficulties encountered was the lack of adequate facilities in either hospital for giving the patients a sufficient supply of fresh air. Only one case showed continuous improvement while in the hospital wards. This was an advanced case treated with ascending doses of old tuberculin, in which the inflammation entirely subsided within two months. The other ward cases did so poorly as regards both their general and ocular condition that they were soon discharged to be treated as out-patients. Three cases were unable to carry out the treatment advised and were lost sight of. One patient in whose case, however, the scleritis was not in a very active stage when first seen, recovered in three months after carrying out in a very imperfect manner the fresh air treatment at her home. In four cases, owing to the more favorable conditions under which the patients lived it was possible to adopt more desirable measures. The patients were directed to give up work, including household duties of any kind, and for the first two or three weeks to rest and take as much nourishment as possible. At night they slept in rooms with the windows open and during the day reclined in couches or hammocks in the open air, taking care to be well protected from exposure to cold. Later, when the ocular condition improved, a certain amount of exercise was permitted. Each patient kept a record of her temperature and weight and any other details of importance. Twice weekly the patients visited the clinic where they received injections of Koch's old tuberculin. Each at first received a dose considerably below that to which she had reacted, and this was slowly increased so long as the eye did not react or the injection was not followed by a rise in temperature. The highest dose reached was 10mg. in one case. Under this treatment all four of the patients steadily gained in body weight and the ocular inflammation in each case entirely subsided within six weeks to two months.[7] The remaining four cases have not yet been under treatment sufficiently long for the beneficial effects to have become clearly manifest.

At least three of the patients several times showed exacerbations during the menstrual periods, which is usual, I believe, also, in other forms of tuberculosis. This no doubt explains why scleritis is sometimes attributed to menstrual disturbances. Possibly it explains also why scleritis is more common among females, since the lowering of the resistance during menstruation no doubt increases the likelihood of metastases. No local treatment was employed in any of the cases other than the use of atropine as a collyrium to prevent iritic adhesions and to make the eye more comfortable.

As already stated, signs of systemic tuberculosis were made out in only three of the cases. Nevertheless, it seems improbable that scleritis was not always secondary to a larger focus elsewhere in the body, for instance, in the bronchial lymph glands or bones. Otherwise it is difficult to explain the extreme chronicity of the process and the slight tendency toward breaking down of the tissues. This is readily explained on the assumption of the existence of a lesion or lesions elsewhere, which, in calling forth protective elements into the blood, inhibits the activity of the local process. This, of course, should not be taken to mean that a systemic infection always suffices to protect the eye, because there are cases of ocular tuberculosis, rare, it is true, such as tuberculous iritis, which usually go on to complete destruction of the eye. Additional, although perhaps not conclusive, evidence that the scleritis was not the sole focus in these cases, is also furnished, by the results of the tuberculin injections, for the general reaction following them always seemed out of proportion to the local reaction, and in four cases no local reaction could be detected. Especially suggestive was the case in which with a febrile reaction of 105° there was no local reaction, although previously the latter had been obtained with a smaller dose. It is noteworthy, too, that the general physical examination in this case was entirely negative.

It is possible, if not highly probable, that these belong to the class of cases in which healed tuberculous lesions are found at autopsy without having been suspected during life. Certainly, the well-known frequency of such cases could easily account for the total number of scleritis

[7] One of the patients discontinued the treatment against advice and one month later had a recurrence of the inflammation.

cases. On the other hand, it is evident that an inflammatory lesion of no greater intensity, even though more extensive than that which in the form of scleritis would produce irreparable damage to sight, might perfectly well occur in the internal organs without giving rise to any definite symptoms.

The explanation of the origin and character of the lesions of scleritis just suggested is also supported by the recent experimental work of Stock [8] on endogenous tuberculosis of the eyes. By injecting tubercle bacilli into the ear veins of rabbits, Stock invariably obtained small foci in the choroid, iris, or ciliary body. Instead of increasing rapidly in size and finally destroying the eye, as happens when bacilli are introduced directly into the anterior chamber, it was found that these lesions as a rule underwent spontaneous healing. Moreover, it was found on histological examination that at first the foci consisted only of round cells; that later central areas of epithelioid cells appeared within them and that, except in one instance, caseation never occurred. In sections of these lesions Stock was unable to demonstrate tubercle bacilli, although he did not doubt their presence. It will be seen, therefore, these foci were identical in structure with the small nodules of scleritis examined by me. They also corresponded in general character to the lesions that have previously been described in enucleated eyes affected with scleritis, notably those described by Uthof [9] and Schirmer.[10]

Stock attributed the mild character of the lesions obtained by him largely to the fact that the bacilli were confined to the blood vessels and thus exerted less toxic action on the tissues. It seems to me, however, that this explanation is untenable for the reason that in general miliary tuberculosis the lesions, which are also due to blood metastases, are not as a rule of this character. A more probable explanation, I think, is that just given to explain the lesions in scleritis, namely, that the bacilli in the lesions are rendered relatively inactive owing to the resistance developed in the individual. In the case of intravenous inoculations this resistance would be developed early due to the great multiplicity of the lesions throughout the body, so that a large proportion of the latter would be checked in their incipiency. It is true that Stock found in the internal organs of all his animals, tubercles showing typical caseation, but he does not state that the organs were examined microscopically, or whether or not lesions similar to those in the eyes were also found. It is fair to assume, therefore, that the latter were present in the internal organs, and perhaps in as great relative number as in the eyes.

From still another standpoint the observations of Stock are suggestive in relation to the origin of scleritis. Stock found that the foci in the anterior part of the uveal tract were much more likely to persist than those occurring posteriorly. More important still, he found that a comparatively large focus could exist in the ciliary body without giving rise to any of the clinical signs considered characteristic of cyclitis. Although a few observers have held a contrary opinion, it has hitherto generally been supposed that when cyclitis and iritis occur with scleritis, as not infrequently happens, it is due to the inflammatory process having spread from the sclera to the ciliary body. The findings of Stock, however, strongly suggest that the reverse is the case, and that scleritis always starts from a focus in the uveal tract, although the uveitis may not manifest itself clinically until the process has become well advanced. In a more recent communication [11] based upon some additional experiments, Stock has himself brought forward this view as to the origin of scleritis. In these later experiments he found in some cases that the sclera became involved in such a way as to produce a condition not unlike that seen in the scleritis of man. Should this view prove correct, it would explain satisfactorily why the nodules of scleritis are most apt to occur in the neighborhood of the anterior perforating vessels, since the latter offer convenient paths for the spread of the process. It would also explain the occurrence of certain cases of interstitial keratitis in which scleritis is apparently absent, for it is conceivable that bacilli might be carried into the cornea from a focus in the ciliary body without lodging also in the sclera. Possibly it would explain also certain cases of so-called serous iritis.

As already stated, Stock was unable to find tubercle bacilli in the sections of the ocular lesions of his animals. In the more recent communication just referred to, however, he describes an experiment which seems beyond question to demonstrate their presence. From the iris of an animal in which the lesions were apparently completely healed, he removed a piece of tissue and introduced it into the anterior chamber of a healthy rabbit. In the latter it gave rise to the typical caseating form of tuberculosis. This experiment illustrates also the fact that tubercle bacilli may remain dormant in lesions which are apparently healed.

If the above conception of the cases under consideration is correct, scleritis may be regarded as a favorable sign so far as prognosis in regard to the systemic tuberculosis is concerned. Moreover, it may be regarded as a disease amenable to treatment, a conclusion that is borne out by the actual results obtained in my cases. While it is probable that the rigorous treatment required in advanced general tuberculosis is not, as a rule, absolutely necessary in cases of tuberculous scleritis, it is obviously the most desirable treatment. It would seem also that there is no class of cases in which the use of tuberculin is more strongly indicated, for it is evident that the resistance of these patients towards the disease must be exceedingly great, and that the added stimulus supplied by tuberculin might be all that would be required to render this resistance

[8] Klin. Monatsb. für Augenheilk, Beilageheft, p. 17, 1903.
[9] Arch. für Ophth., xlix, 3, 1900.
[10] *Ibid.*, xli, 4, 1895.
[11] Stock: Bericht. d. Versamm, d. Ophth. Gesell. zu Heidelberg, 1905, p. 297.

completely effective. While a noticeable improvement almost always followed a local reaction to tuberculin in my cases, it would probably be unsafe to produce such a reaction repeatedly, owing to the possible danger of creating new foci not only in the sclera and cornea but in the internal organs as well. I have therefore endeavored always to regulate the doses used in treatment so as to avoid not only a rise in temperature, but also the slightest reaction in the eye. It would seem that the eye itself should be the best possible indicator of the resistance of the patient, superior even to the opsonic index of Wright, since it presents a focus in plain view in which slight variations in the intensity of the process are readily apparent.

As is well-known, one of the chief characteristics of scleritis is its tendency to recur after the inflammation has apparently completely subsided. This is probably analogous to the flaring up of an old tuberculous focus in the lungs, and, as in the latter case, is probably not due to fresh metastases, but to renewed activity of tubercle bacilli which have remained dormant. For this reason it is evident that treatment should not be altogether abandoned even after all signs of scleritis have disappeared.

Thus far I have been so well satisfied with the results obtained with the old tuberculin that I have not considered it advisable to use the new tuberculin (tubercle bacillus emulsion). I have felt some hesitancy in using the latter also on account of the supposed danger of introducing live virulent bacilli into the patients. The difficulty of obtaining a uniform dosage is another objection to its use. However, I should not hesitate to try it in a case that was not responding well to the old tuberculin.

In conclusion, I wish to express my obligations to Drs. H. H. Haskell, A. Quackenboss, Myles Standish, H. B. Chandler and F. M. Spalding, for turning over to me some of the cases in which these observations were made.

STUDIES IN PSYCHOPATHOLOGY.

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I. RECURRENT PSYCHOMOTOR STATES.

Under recurrent psychomotor states I include insistent ideas, imperative concepts, persistent or periodically appearing emotional states, irresistible impulses, as well as the psychomotor attacks of an apparently epileptic character which may be designated as "psychic epilepsy." All those various states are found in many a symptom-complex of the insanities, but they are still more often met with in the functional mental and nervous diseases, — in functional psychosis. In fact, in many forms of hysteria, in many types of neurasthenia, or of the more fashionable "psychoasthenia," recurrent psychomotor states constitute the main and often the only symptoms of the malady.

The recurrent psychomotor states, with their great wealth of symptoms, appear almost mysterious in their onset and origin; they flash lightning-like on the patient's mind, get possession of it, then disappear, only to reappear on some other favorable occasion. Others persist in consciousness, with but slight remissions, and keep the patient in a continuous agony. The patients are aware of the absurdity of the ideas and impulses, but they are powerless to resist them. They regard such onsets somewhat in the same way as the epileptics regard their attacks, which set on against will and consciousness, and which are not subject to control. I do not mean by it to indicate that all those psychic attacks are of an epileptic origin, but I only wish to point out the fact that there is some analogy between recurrent psychomotor states and epilepsy, inasmuch as both of them come on as sudden, uncontrollable attacks.

It is true that in some cases we can drive the analogy more closely, because in some of the forms of recurrent psychomotor states we observe somewhat similar symptoms. We find the presence of a distinct aura, sensory in character, a sense of oppression, and sometimes a profound disturbance of consciousness during the attack, the patient occasionally being insensible to external stimuli. In some cases we even find a dazed state of consciousness, headache, and a condition of extreme fatigue after the attack is over. This resemblance, however, is but a superficial one. Recurrent psychomotor states differ widely from epilepsy. I have pointed this out in my previous works[1] and shall show it in this paper by an analysis of cases selected from a number of others of the same type. Many writers are deceived by this superficial resemblance and regard such attacks as "larval epilepsy," "as psychic equivalent of epilepsy." Such a view is entirely unjustified by a close scientific analysis of the facts. The most that can be done is to draw an analogy between the attacks of insistent states and the attacks of epilepsy, but we must bear in mind that analogy is not a safe method, as one may find himself reasoning on the same lines with the Esquimaux, who regards glass as a kind of ice.

Now it can be shown by rigid analysis of the cases of recurrent psychomotor states that they have nothing to do with epilepsy, although they may be associated with it, and that a study of the cases of recurrent psychomotor states reveals the fact of the presence of subconscious activities which become manifested as insistent ideas, uncontrollable emotions, irresistible impulses and various psychomotor states closely simulating epileptic attacks. It is from this standpoint that we may designate such simulating attacks as psychic epilepsy, not because they are psychic attacks, "equivalents" of real epilepsy, but they are pseudo-epileptic attacks of a purely psychic

[1] Psychopathological Researches; Multiple Personality.

origin, — they are manifestations *of subconscious activities.*[2]

One general characteristic of those psychomotor states is the fact of their recurrence with the same content of consciousness and with the same invariable motor reactions. The patient thinks, feels, wills and acts the same way. Subconscious dissociated states belong to the type of recurrent moment consciousness, a type characteristic of the lower forms of animal life, which respond to external environment with the same adjustments, with the same psychomotor reactions. From this standpoint, we may regard the recurrent psychomotor states as a reversion to the lower forms of consciousness. The suddenness of the attack, the uniformity of the manifestations of the symptom-complex, the uncontrollable, overpowering effect on the patient's personal consciousness are all due to the same underlying factor of dissociation of the patient's subconsciousness. A disaggregated, subconscious life gives rise to recurrent psychomotor states, — to insistent ideas, imperative concepts, uncontrollable emotions, irresistible impulses, and to states of "psychic" epilepsy.

There are many cases of insistent ideas and irresistible impulses which seem to contradict this law of uniformity and recurrence of psychomotor states which are seemingly of an evanescent character, — they are like stray comets coming out of the depths of space only to disappear again and never to recur. A close investigation will reveal the fact that the contradiction is but an apparent one. The various insistent ideas and impulses can in reality be referred to some few fundamental states persistently present in the subconscious and only appearing under different forms in the personal consciousness; they are like so many leaves and fruits of a single plant whose stem and roots are planted firmly in the subsoil of mental life. We may then say that all insistent mental states take their origin in a disaggregated subconsciousness and are periodic or recurrent in character, and as such may well be designated as *recurrent psychomotor states.*

II. CLASSIFICATION OF RECURRENT MENTAL STATES.

We may possibly get better oriented in the vast domain of insistent mental states, if we make some provisional classification, however rough and unsatisfactory it may otherwise be. Now we may classify insistent mental states according to content and form. Classified according to content, we may divide insistent mental states into (1) conceptual or ideational, (2) ideo-motor, (3) sensory, (4) sensory motor, (5) motor. According to form, they may be classified as, (1) desultory and (2) systematized.

In the conceptual forms it is the general abstract idea that keeps on troubling the patient, such as the nature of God, the nature of Christ, or the nature of the Trinity and so on. The insistent ideas are here more or less of a metaphysical character. The patient does not feel satisfied with any answer. In many different ways the patient tries to raise difficulties to all kinds of possible answers. He tries to find loop-holes to escape from any solution, so as to have the question remain in full force. Were it not for the intense anxiety which is sometimes associated with such states, one would say that the patient delights in the mere process of questioning. He wants the problem, but refuses obstinately to accept the solution. In reality, however, it is not a matter of delight to the patient to persist in a state of problematic consciousness, so to say. Logical as the solution may appear to the patient, the problem is ever forced on the patient's personal consciousness, for it is the work of dissociated states having their origin in a disaggregated subconsciousness.

The insistent ideo-motor states refer to some act or motor activity which the patient has to reason out so as to know all the *pros* and *cons,* such as, for instance, whether it is right to play cards, or to read a Sunday newspaper, or to visit theatre, or to travel on a Sabbath day. The patient gets lost in argumentations and discussions. He employs the most subtle casuistry, but he always meets with difficulties, never coming to any definite conclusions. Like the conceptualist, his mind is set entirely on the thought of the action which is never to become a reality. The patient's will is thus paralyzed and he is in a state of doubt, indecision and hesitancy. The patient cannot accept any decision, however logical, as the same problem ever surges up in his mind with renewed vigor. What avails the patient's reason against the blind dissociated forces, surging up from the depths of a disaggregated subconsciousness?

The insistent sensory states comprise a wide domain of manifestations. All the insistent emotional states could be classed as sensory, since an emotion may be regarded as a massive complex of sensory elements coming from various parts of the organism. Under this head we may include the functional states of depression and anxiety as well as the various phobias. Here also belong the various pains, headaches, hemicranias or migraines, when forming the main or central symptom of functional psychosis. The sensory symptoms of the hysterias, such as the anesthesias and hyperesthesias, belong to the same category. All those states present the typical characteristics of the recurrent moment-consciousness. All of them can be referred to the dissociated experiences persisting in a disaggregated subconsciousness. What is manifested as the attack with the whole symptom-complex characteristic of it can be traced by a rigid analysis to an original experience which has occurred during the process of dissociation. The dissociated subconscious experience keeps on recurring as an attack. What goes under the name of hysterical stigmata can in reality be traced to dissociated subconscious experiences.

During the attack the patient may preserve his personal consciousness fully or but partially. In such a case it appears as if two centers of con-

[2] By the subconscious is meant all mental or psychophysiological processes of which the individual is not directly conscious.

ciousness are at work, one beside the other and one independent of the other. The patient may be aware of the new independent forces which are foreign to him, but which have apparently taken possession of him in spite of himself. The self seems to be torn in two, and consciousness is doubled. A new incipient parasitic personality is being formed in the recesses of the subconscious, a parasitic personality having a will of its own and no longer subject to the patient's personal control. In other cases, again, the dissociated systems forming the parasitic personality may become fully manifested without the patient being aware of it. We have, then, two personalities in one organism working side by side, each apparently ignoring or not taking cognizance of the existence of the other. In other cases, again, the subconscious personality seems to take full possession of the principal focus of consciousness, the parasitic personality swamps the personal consciousness which sinks below the level of the active mental life and becomes submerged and no longer enters into active relations with the external environment. During such an attack the character of the person is changed and the memory is not bridged over as it is in the course of the normal associative activity, the functional recognitive elements are missing, consciousness may know of those experiences, but does not know them as its own.

It is enough to outline here in a general way the possible lines of mental dissociation, as the discussion may carry one far into the domain of psychopathology. What we want to bring out is the fact that the phenomena of recurrent or insistent mental states range here through various stages of dissociation and that they can all by analysis be referred to a condition of a disaggregated subconsciousness.

The sensory motor and purely motor are closely interrelated; sometimes the sensory and sometimes the motor symptoms predominating in the total symptom-complex, when examined from a clinical standpoint. Here belong the various functional or hysterical visceral disturbances, hemiplegias, paraplegias, paralyses and contractures, also the functional tremors of psychic origin, all the states of " epilepsy " of the psychic type known under the name of " psychic epilepsy" which so closely simulate typical epileptic attacks. Finally, to the same category belong the various types of ties.

The dissociated subconscious states may appear in consciousness in a disconnected, disseminated form, — they may appear as broken-up sentences, phrases and sounds, or of images having no relation with one another; they may come and go in great confusion, often producing a chaotic condition in the patient's mind. The ideas keep on chasing one another, turning in circles without any rhyme and reason until the patient feels tired, exhausted and dazed by the kaleidoscopic whirl of the storm of ideas. Such insistent states may be designated as desultory.

Quite often, however, the recurrent states are paranoidal in form. The ideas and feelings are well organized. The patient can give a clear interconnected account of his insistent states. In fact, the insistent states stand out in the patient's mind so clear and definite that the patient can give a detailed analysis of all the minutiæ of the condition. It seems as if his gaze is almost microscopically distinct, the least relation and outline are noticed. The insistent mental state seems as if fixed, so that the mental picture is strongly impressed on the patient's consciousness and the vaguest detail cannot escape scrutiny. A wealth of associations are grouped around the central experience of the recurrent mental states, which form nuclei of highly organized groups of mental systems, arranged in an orderly array and logical relationship, forming an organic whole of a high degree of organization, the nature of which cannot be understood without a thorough exploration of the subconscious. Such recurrent mental states may be described as systematized.

All those various manifestations can by close investigation into the patient's subconscious life be traced to active dissociated systems, having their origin in a disaggregated subconsciousness.

Of course, the reader must be warned not to regard my classification of the recurrent mental states as final. I made this classification to bring some order into that vast domain of mental life, so that we could make a brief review of the phenomena we deal with. The classification is simply a rough outline of the various phenomena that may have their origin in dissociated states of a disorganized, disaggregated subconsciousness. I should expect that the critical eye will detect in it a number of gaps, but the classification is offered as a provisional one which may possibly serve for practical purposes.

III. MAIN TRAITS OF DISSOCIATED STATES.

One point is worth while to bring out, and that is the fact of recurrence, so highly characteristic of the activity of dissociated subconscious states or moments-consciousness. The dissociated moment rises from the depths of the subconscious regions, oversteps the threshold of consciousness, manifests itself with an irresistible energy, throws the normal psychomotor reactions, for the time being, into a state of disorganization and then lapses from consciousness, only to be resurrected under conditions favorable to its activity. Such dissociated subconscious activities I describe under the term of recurrent moment consciousness. This characteristic of recurrence is of great importance in psychopathology, as it brings the subconscious activities under one perspective view, gives an insight into their nature and mode of manifestation; and from a biological standpoint brings them in line with the mode of action of the lower mental states, which respond to various stimuli of the external environment with the same amount and quality of sensori-motor reactions.[3]

[3] The objection made by Dr. J. J. Putnam that consciousness keeps on changing continuously, not being the same at two successive moments, " that the past phases of our conscious life no longer have any real existence, and that of a series of memory pictures of the same event no two are really ever alike " is purely metaphysical; the same objection may be made to the whole domain

The sense of reality is usually described, by writers on the subject, as not being affected. This is not the case. A close study of the facts shows that the insistent mental states come with an intensity of the sense of their reality almost directly proportional to the insistence of the mental state which is truly delusional, or even hallucinatory, in character. This is especially true of the systematized recurrent states of the sensory type. The dissociated subconscious states refer to a *past reality, now subconsciously real.* In the ideational or conceptual forms the sense of reality appears to be weakened, because of the insistence of the ideational elements as contrasted with the sensori-motor elements.

Another important and striking trait of the dissociated states is the violence, I would almost say vehemence, with which they become manifested; they reveal an amount of energy which similar states do not possess in the normal condition, when the personal consciousness is in active relation with the external environment. The energy displayed is more than the individual is capable of putting forth under ordinary conditions of life. The sudden mysterious onset of subconscious states, foreign to the whole character of the individual, as well as the sudden display of energies until now unsuspected in the person, make those states appear as mystical in the eyes of the populace and the superstitious. No wonder that the church has regarded subconscious activities as supernormal and miraculous and either ascribed them to divine powers or to satanic agencies and demoniacal possessions and obsessions. In our own time we have men devoting time and energy to the investigation of the supernormal nature of subconscious phenomena.

In my previous works on the subject I have discussed the energy and violence of the eruption of subconscious forces as due to lack of inhibitions. This follows from the very nature of dissociation. Dissociated subconscious systems being released from all relations with other systems and groups of mental elements, being let loose, so to say, from all associative bonds, will naturally display an amount of energy unusual for similar systems under the normal conditions of mental association. Still the phenomena of dissociation point to facts of a very important character. They point to an extremely important principle which I term "the principle of potential subconscious energy," a principle which is of importance from a theoretical as well as from a practical therapeutic standpoint. I shall try to give a brief account of this principle of potential subconscious energy further on in this paper. Meanwhile, we should keep in mind two main characteristic traits of subconscious phenomena as manifested by dissociated states,— *recurrence and latent energy.*

It may also be well to bring out another point of interest which holds true of the various types of insistent mental states, — they cannot be understood in the light of conditions under which they occur, or truer to say recur, since they bear no relation to their immediate environment, but to that under which the states have originally taken place. Unlike the mental states of the personal consciousness which are characterized by direct adjustments to the PRESENT conditions, the insistent subconscious states are adjustments to PAST conditions. May we not describe insistent or recurrent mental states as *resurrected moments?*

IV. HYPNOIDIZATION AND HYPNOIDAL STATES.

In order to get at the dissociated subconscious states I have for many years employed a method which gives uniformly excellent results. I wish to attract the attention of the medical profession to this method of hypnoidization, as it is not only of theoretical importance for the purposes of psychopathological analysis, but it is possibly of still greater value for practical therapeutic purposes. This is all the more requisite, as recently some medical men have confused the method of hypnoidization with that of Breuer and Freud on the one hand and with Janet's method of distraction on the other. The three methods are radically different and are based on widely different principles. The nature of the states obtained by the method of hypnoidization, as well as the character of the results, differ fundamentally from those of the other two methods. I shall return to this point further on in the study.

An investigation of the nature of suggestibility carried out by me in a former work led me to formulate the following laws and conditions of normal as well as abnormal suggestibility. I do not think I shall be accused of plagiarism, if I take the liberty of quoting the table of normal and abnormal suggestibility from my "Psychology of Suggestion":

Normal Suggestibility.	Abnormal Suggestibility.
1. Fixation of attention.	1. Fixation of attention.
2. Distraction.	2. ———
3. Monotony.	3. Monotony.
4. Limitation of voluntary movements.	4. Limitation of voluntary movements.
5. Limitation of the field of consciousness.	5. Limitation of the field of consciousness.
6. Inhibition.	6. Inhibition.
7. Immediate execution of the suggestion.	7. ———

It will be out of place in this study to give an account, however brief, of the experiments and discussion of the results arrived at; I can refer those who are interested in the subject to the original work; for our present purpose it is enough to give here the principal laws formulated and the main results arrived at which will help to

of science. It is based on the ambiguity of the concept "sameness," which may be taken either in the relative scientific sense or in the absolute metaphysical sense. Now from an absolute metaphysical standpoint nothing is the same, every thing keeps on changing in the very moment of its coming into being, as Heraclitus puts it, "we do not descend twice into the same stream"; or as Hegel puts it: "Das Jetzt wie es uns gezeigt wird ist ein Gewesenes. Aber was gewesen ist, ist in der That kein Wesen; es ist nicht": but this is metaphysical. From the standpoint of science which deals with facts and their relations, with the relative, objects, states and conditions, physical and mental, can certainly be the "same." In fact, science would have been impossible if objects, states and conditions were to change "in their moment of becoming," and that without the possibility of making them recur, or of reproducing them under the *same* conditions and with the *same* results. Metaphysics should better be kept apart from science; in our scientific work we should steer clear of all metaphysics. Of course, it goes without saying, that by metaphysics is here meant the theory of being and of the ultimate concepts of science, but not that stupid vulgar stuff and silly curative religious hodge-podge of superstition claimed as "metaphysics" by the mental healer and Christian Scientist.

comprehend clearly the full significance of the method of hypnoidization.

Now in the same work I come to the conclusion as the result of the investigation that " the nature of abnormal suggestibility is a disaggregation of consciousness, a slit, a scar, produced in the mind that may extend wider and deeper, ending at last in a total disjunction of the waking, guiding, controlling consciousness from the reflex consciousness. . . . Normal suggestibility is of like nature, — it is a cleft in the mind, only here the cleft is not so deep, not so lasting, as it is in hypnosis or in the state of abnormal suggestibility; the split is here but momentary, evanescent, fleeting, disappearing at the very moment of its appearance."

We have also shown that the laws of normal and abnormal suggestibility may be stated as follows:

" Normal suggestibility varies as indirect suggestion and inversely as direct suggestion.

" Abnormal suggestibility varies as direct suggestion and inversely as indirect suggestion."

The general law of suggestibility is:

" Suggestibility varies as the amount of disaggregation, and inversely as the unification of consciousness."

Now it is on those general laws and nature of relation of the personal consciousness to the subconscious that I have based my method of hypnoidization. In order to reach the dissociated mental states we have to lay bare the subconscious, and this can be effected by the conditions requisite for the induction of normal or abnormal suggestibility, conditions which bring about a disaggregation of consciousness. In cases, therefore, where hypnosis is not practicable and the subconscious has to be reached, we can effect a disaggregation of consciousness and thus produce an allied subconscious state by putting the patient under the conditions of normal suggestibility: fixation of attention, distraction, monotony, limitation of the voluntary movements, limitation of the field of vision, inhibition and immediate execution. This is precisely what the method of hypnoidization consists in: " The patient is asked to close his eyes and keep as quiet as possible, without, however, making any special effort to put himself in such a state. He is then asked to attend to some stimulus such as reading or singing (or to the monotonous beats of a metronome). When the reading is over, the patient, with his eyes shut, is asked to repeat it and tell what comes into his mind during the reading, or during the repetition, or immediately after it. Sometimes the patient is simply asked to tell the nature of ideas and images that have entered his mind." This should be carried out in a very quiet place, and the room, if possible, should be darkened so as not to disturb the patient and bring him out of the state in which he has been put.

As modifications of the same method, the patient is asked to fixate his attention on some object while at the same time listening to the beats of a metronome; the patient's eyes are then closed; he is to keep very quiet, while the metronome or some other monotonous stimulus is kept on going. After some time, when his respirations and pulse are found somewhat lowered, and he declares that he thinks of nothing in particular, he is asked to concentrate his attention on a subject closely relating to the symptoms of the malady or to the submerged subconscious states.

The patient again may be asked to keep very quiet, to move or change position as little as possible, and is then required to look steadily into a glass of water on a white background, with a light shining through the contents of the glass; a mechanism producing monotonous sounds is set going, and after a time, when the patient is observed to have become unusually quiet, he is asked to tell what he thinks in regard to a subject relating to his symptoms. He may be asked to write the stray ideas down, if speaking aloud disturbs the induced states favorable to the emergence of the dissociated mental states.

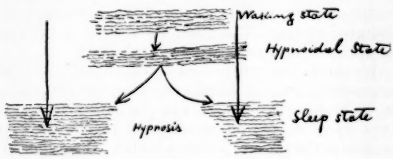
In some cases it is sufficient to put the patient in a very quiet condition; have his eyes shut and command him to think hard of the particular dissociated states. This mostly succeeds in the case of patients who are also somnambulists.

In short, the method of hypnoidization is not necessarily fixed, it admits of many modifications; it is highly pliable and can be adjusted to the type of case as well as adapted to the idiosyncrasies of the patient's individuality. This method of hypnoidization has nothing in common with Freud's method, nor with Janet's method of distraction. Freud's method is based on the course of normal associative activity, while the method of hypnoidization is based essentially on the process of dissociation by inducing a slight state of disaggregation of consciousness. From Janet's method of distraction, that of hypnoidization differs fundamentally in that it is not at all based on distraction, but on the conditions of *monotony*, and sensori-motor limitations. In contrast to Janet's method of distraction, hypnoidization may be characterized as the *method of monotony*.

V. HYPNOIDAL STATES.

What do we produce by the method of hypnoidization? We produce a peculiar state which, for the lack of a better term, I designate as " hypnoidal." What is the hypnoidal state? The hypnoidal state is essentially a borderland state. The subject is apparently awake and seems to be in full possession of all his powers, and still he is more closely in touch with the dissociated experiences than he is otherwise in the full waking state. Perhaps the *subwaking* state would possibly be an apt term for the hypnoidal condition. The subject seems to hover between the conscious and the subconscious, somewhat in the same way as in the half-drowsy condition we hover between wakefulness and sleep. The hypnoidal state is not a stable condition, it keeps on fluctuating from moment to moment; now falling more deeply into a subconscious condition in which outlived experiences are easily aroused, or again rising to the level of waking states. In such conditions the patient often tells you " something has come . . . , but it is gone." The hypnoidal state has changed, it has become lighter, and the

dissociated moments have become again submerged. There is a constant struggle going on in the hunting out of the stray dissociated systems. The state brought about by hypnoidization is essentially a transient, evanescent, mental disaggregation of the personal consciousness from the reflex subconsciousness. The hypnoidal state borders closely on light hypnosis; and still it is not exactly a hypnotic state and may be regarded as an intermediate state. In a series of experiments on the nature of sleep of lower animals as well as of infants and adults, now being carried on by me at the physiological laboratory of Harvard Medical School and in my own laboratory, the facts tend to indicate that the hypnoidal state is intermediary between hypnosis and sleep on the one hand and the waking state on the other. The relation may be represented by the following diagram:



The hypnoidal state may either lead to sleep or to hypnosis.

The close relationship of the hypnoidal state and of hypnosis is sometimes forcibly brought to the attention of the experimenter. Some patients while in the hypnoidal state are observed to become unusually quiet, less talkative, become relaxed, and after a time a distinctly cataleptic condition of the extremities may be observed. The patient has apparently passed into hypnosis. In most of the cases the hypnosis is of very brief duration, while in a few cases the hypnosis may become lasting and deep. On the other hand, in many cases the subject falls into a sleeping state without as much as touching on hypnosis. The hypnoidal state is an intermediary state, intermediate between the waking state, and sleep hypnosis. Subwaking may possibly be an appropriate descriptive term of the character of the hypnoidal state. The subwaking hypnoidal state, like sleep and hypnosis, may be of various depth and duration; it may range from the fully waking consciousness and again may closely approach and even merge into sleep or hypnosis. The same patient may at various times reach different levels, and hence subconscious experiences which are inaccessible at one time may become revealed at some subsequent time, when the patient happens to go into a deeper level of the hypnoidal state.

On account of the instability of the hypnoidal state and because of the continuous fluctuation and variation of the depth of its level, the subconscious dissociated experiences come up in bits and scraps and often may lack the sense of familiarity and recognition. The patient often loses the train of subconscious associations; there is a constant struggle to maintain this highly unstable hypnoidal state, and one has again and again to return to the same subconscious train started into activity for a brief interval of time. One must pick his way among streams of disturbing associations before the dissociated subconscious experiences can be synthetized into a whole, reproducing representatively the original experience that has given rise to the whole train of symptoms. The hypnoidal state may sometimes reproduce the original experience which, at first struggling up in a broken, distorted form and finally becoming synthetized, gives rise to a full attack. The symptoms of the malady turn out to be portions, bits and chips of past experiences which have become dissociated, subconscious, giving rise to a disaggregated subconsciousness. The method of hypnoidization and the hypnoidal states induced by it enable us to trace the history and etiology of the symptoms and also to effect a synthesis and a cure by means of methods which will be described further on.

From the cursory discussion of the insistent psychomotor states, of the method of hypnoidization and hypnoidal states we can turn now to the cases.

(To be continued.)

THE RELATIVE VALUE OF MASSAGE, EXERCISES AND BATHS IN THE TREATMENT OF HEART AFFECTIONS.

BY DOUGLAS GRAHAM, M.D., BOSTON.

HARVEY, in 1650, narrated the case of "a man who in consequence of an injury or an affront which he could not revenge was so overcome with hatred, spite and passion that he fell into a strange disorder, suffering from extreme compressions and pain in the heart and breast from which he only received some little relief at last when the whole of his chest was pummelled by a strong man as the baker kneads dough."

Physical or external therapeutics, in contradistinction to medical or internal remedies, have come much into favor in the treatment of disease of the heart in the past few years. These are massage, resistive movements, saline baths, and mountain-climbing. Of these, massage is the most generally applicable. It can be used in cases so weak as to preclude the possibility of applying any of the others. In almost every conceivable form of weak and diseased heart I have been called upon to do massage, and usually with marked relief and comfort, before Schott or Oertel were ever heard of. While it was being done and for some time after, the patients have generally been able to lie on either side or flat on the back, and often go to sleep in this position, — what they could not have done before. In other cases, where it was impossible for them to lie down at all, I have *masséed* with relief until within a short time of their death.

Massage of the chest over the region of the heart has a powerfully tonic and sedative effect on this organ, as either physicians or patients can

prove by observing its effects in their own persons by means of Bowle's excellent stethoscope. Even a well but lazy heart will be found to beat much better and with clearer accentuation after a few minutes of massage, reminding one very much of the effect of using the bellows on a fire that burns slowly. This is most marked in the flabby neurasthenics.

The enthusiasm of Professor Oertel over massage of the heart may have gone a little too far, but perhaps this may have been necessary in order to wake up the profession to its great value. In a recent work on this subject, he considers that massage acts upon the heart in the same way that it does upon the muscles of the extremities. In order to do this, the chest wall would have to be removed, so that the heart might be grasped and directly *masséed* — a procedure that would hardly be justificable in the human being, except in extreme cases. While the patient stands he advises that gliding pressure should be made upon the chest walls downward and inward, the benefits of which, he states, "are not only referable to its influence in perfecting expiration, but also to the direct pressure upon the heart, influencing its nutrition precisely as massage benefits the muscles of the extremities." The patient would have to be pretty well to stand while this was being done. The influence of massage over the heart is indisputable, but evidently it must be more indirect and sympathetic than direct. Oertel very properly considers this treatment indicated:

"1. When the heart muscle is weak from deficient nutrition, anemia, or corpulence.

"2. When the arterial system is imperfectly filled and there is passive congestion as a result of insufficiency of the myocardium.

"3. When there are valvular lesions or obstructions to the circulation, the pressure of tumors, or constriction of the pulmonary orifice, emphysema, or curvature of the spine.

"4. As an accompaniment of treatment of the heart by mountain climbing.

"It is contra-indicated in acute or recurring endocarditis or pericarditis, in acute and subacute myocarditis, the result of sclerosis of the coronary arteries, and in general arteriosclerosis."

I have never seen a case of arteriosclerosis that was harmed in any way by massage, nor have I met any one who has. Such a statement is made on purely theoretical grounds.

General massage, carefully administered, is of great aid to the peripheral circulation, lessens the work of the heart, tranquilizes the nervous system, and induces sleep in the worst kind of heart disease, and massage of the abdomen often works well as a diuretic and to relieve the stasis of the mesenteric veins and all the other abdominal veins.

Next to massage in its universality of application and under circumstances in which patients have been too weak to undergo saline baths or mountain-climbing, come resisted movements. These, combined with the saline, sparkling waters of Nauheim, were first brought prominently to notice by the Drs. Schott, who up to 1891 had treated in this way 2,700 cases of cardiac disease, mostly with great benefit or recovery. Each resisted movement of extremity or trunk is slowly and completely executed, followed by a pause, after which the opposing movement alternates in the same way, while the physician or person who makes the resistance is ever watchful to avoid anything like fatigue, difficulty of respiration, or increased disturbance of heart, and should such arise a longer pause is given. Some of the advocates of this method state that no movement is to be repeated twice in succession to the same limb or group of muscles, but I have yet to learn that Schott himself is so absolute in his directions.

The immediate effect of the bath is not quite so marked as after the exercises, but it lasts longer while the exercises can be used repeatedly on the same day and without regard to place. In illustration of this the resistive movements were given to a boy who was weak and anemic. Percussion showed dilatation of the heart. Two skiagraphs were taken, one before, the other fifteen minutes after, a quarter of an hour of exercises of moderate resistance. It was evident that the heart had contracted strongly on both sides and that it had changed from the shape of an orange to that of a lemon and was one-half inch smaller by measurement. For the sake of comparison and in order to ascertain the effect of the Nauheim effervescent bath alone, Dr. Schott had a somewhat similar case, a girl fourteen years of age, carried to the bath and after this back to the table. It was found as a result of the bath that the heart had contracted about one centimeter (less than half an inch) in its horizontal diameter. This is getting matters down pretty fine.

It has also been shown by Dr. Schott to the satisfaction of impartial observers that wrestling until the breathing became short or excessive, bicycling produced dilatation of the heart and weakened it, from which he has deduced the axiom, —

"Systematic exercises strengthen the heart, unsystematic exercises weaken it." [1]

Dr. W. Bezly Thorne, of London, who has witnessed the effects of systematic resisted movements in many cases, says of them: "The results are such as would scarcely be believed by any but an eye-witness. It is by no means uncommon in cases of dilatation to see within one hour the oblique long diameter of the heart's area of dulness diminished by from three quarters of an inch to an inch and a quarter; and, perhaps more surprising still, to observe a diminution by as many as two inches in vertical measurement of of a liver which at first extended to the umbilical level, and to hear the patient, at the conclusion of what cannot be considered an ordeal, volunteer the statement that a load has been removed from the precordium, that he breathes easier and more deeply, and experiences a sense of general relief."

[1] New York Med. Rec., March 26, 1898.

When such good results can be obtained from massage or resistive movements alone, it would seem almost superfluous to burden patients with baths besides other than what may be necessary for cleanliness. Indeed, the advocates of the mineralized baths are not very clear in their ideas as to when the one or the other should be used or when they should be alternated or combined, so that these problems must be left to the discretion of the attending physician, who will be guided by the effects upon the patients. Dilatation of the arterioles and reduction of high arterial pressure may be obtained by slow, deep kneading of the muscles of the system at large; while on the other hand, increase of the strength of the systole may be brought about by gentle resistive movements of the limbs and by friction or stroking of the limbs and body towards the heart.

The waters of Nauheim consist largely of a solution of chloride of sodium and chloride of calcium with an abundance of carbonic acid gas, and are of varying degrees of strength. Similar combinations are for sale at the drug-stores which can be dissolved in one's own bath-tub; but employed in this way the effects are not so favorable as they are at Nauheim, where pleasant scenery, bracing atmosphere, and absence from the cares of home all contribute beneficial influences. The duration of the bath at first should not exceed ten minutes, and the temperature of the water should be about 92° or 93° F. At the commencement, the bath should be omitted every other day, then every third day, next every fourth day. Later, the baths are given oftener and longer, their mineral ingredients are stronger, and the temperature is cooler, down to 88° or 85° F. Though the immediate effect of these sparkling waters conveys the impression of a bath of champagne and induces a sense of exhilaration, yet the first few baths are apt to be associated with a sense of oppression at the precordium and the patients breathe more slowly and deeply for a few minutes. Respiration then becomes easy and continues slower. When infiltration or deposit has occurred in accessible places careful massage succeeds the bath. Sometimes the resisted movements are used to prepare patients for the baths, and they should be continued sufficiently long after until the patients can climb mountains. After the completion of the bath and exercise treatment Dr. Schott says he has seen patients make extensive tours through the Alps and even climb Mont Blanc and Monte Rosa without any difficulty. Nothing is said about the duration of the treatment. It must vary greatly to suit different cases and be limited or extended by the convenience of the patient.

It is certain that but few American patients who are well enough to go to Nauheim would be willing to submit to this treatment at home for a sufficient length of time to do any good at all.

Respiratory exercises are often of great value, even when not enforced by the exhilarating exercise of mountain climbing. John Hunter, in his graphic sketch of his own case, stated his belief that he had often prevented himself from dying by deep breathing. Deep respiration alleviates the suffering of many cases characterized by extreme arterial pressure as well as those attended by cyanosis. It probably acts by unloading the right cavities of the heart and by relieving pressure from the aorta. (Gibson.)

It is emphatically declared that gymnastics or physical exercises by means of mechanical appliances should form no part of the system of resisted movements, and that they are even opposed to it as harmful. They ought to be helpful when improvement has sufficiently progressed, especially exercises with elastic cords, as their use gives alternate resisted movements each way.

Possibly the advocates of the saline bath in disease of the heart have not taken sufficient account of the fact that when a body floats in water it is buoyed up by an elastic resistance equal to its own weight, and this presses the venous blood and lymph back to the heart from the parts that are submerged. This is massage by hydraulic pressure of the immersed portions of the body.

According to Fleischl, the shock of the blood sent into the capillaries at each cardiac systole has a mechanical action in aiding the chemical processes of tissue change in somewhat the same way, though to a less extent, as a blow upon a percussion cap. If a heart is too feeble or the resistance in the vessels too great to allow the blood entering the aorta at each systole to give a distinct forcible impulse to the blood present in the arteries, the chemical changes in the tissues will be sluggish and imperfect. It is therefore of the utmost importance in the treatment of disease to maintain the action of the heart and to stimulate it when flagging. (T. Lauder Brunton.)

Dr. Douglas Powell, in the *British Medical Journal* of April 9, 1898, helps to define more clearly the use of massage and exercise. He tells us that massage is a means of helping on the convalescent stage of acute heart disease and of combating the tendency, to stagnant circulation in those who are disabled by chronic heart disease. The treatment, he thinks, is still more useful in maintaining the circulation and mildly stimulating the coronary circulation in those who are bedridden and, on that account, suffer from impairment of heart nutrition and chilly extremities, feeble pulse, torpid digestion, and passive congestion of the lungs. The treatment is not advisable in acute affections of the heart.

The effects of the Schott or Nauheim exercises are a stimulation of the heart's action, with a steadying effect or increased completion of the systole, improved circulation through the coronary vessels, and an increased motility of the blood by its readier passage in greater bulk through the muscles, thus relieving stagnation in the great internal organs, especially of their veins. The graduated exercises may be regarded as a counsel of perfection, as a preliminary to the return to this increase of active life of which the

condition of their heart admits, and also as a guide to what that measure of exercise will be. Resistive exercises are especially adapted for the initial treatment of those flabby, irritable, "stuffy" hearts, applying this term to cases of fatty infiltration and impaired metabolism which are met with in people of venous plethora. Irritation of a sensory nerve causes general contraction of blood vessels.

In cases of chlorosis with dilated heart, after a preliminary week or two of rest, the Schott treatment is valuable if combined with a dry, bracing air and milk chalybeate. It is useful in commencing failure of the heart, in chronic valvular lesions, combined with less of other exercises, and also after such cases have been restored to a certain extent by digitalis. It is unsuited in all cases of acute endocarditis while there is any trace of activity of lesion left, and in cases of advanced cardiovascular changes of the nature of sclerosis, or in introspective people with neurotic hearts.

An excellent summary of this treatment of heart affections was given by Sir Grainger Stewart before the British Medical Association at Carlisle. He has fully satisfied himself on the following points:

1. That in the great majority of cases of cardiac dilatation the area of cardiac dulness diminishes perceptibly during each administration of massage.

2. That the character of the cardiac sounds and the rhythm and strength of the pulse correspondingly improve.

3. That the patients usually experience a sensation of comfort and feel the better for the treatment.

4. That although the immediate favorable effects pass off in a few hours, yet they frequently do not pass off completely, for he has often found the line of cardiac dulness within that with which they had started at the previous séances.

5. That repeated applications of massage bring about a permanent diminution of the area of dulness, with improvement of pulse and of the patient's sensations.

6. He has seen a case in which the so-called Schott treatments produced a deleterious effect, rendering the heart more irregular and intermittent. It was afterwards treated by massage alone on the following day with most striking benefit. It turned out that the patient was not sufficiently well to bear the active movements, but was greatly benefited by the passive ones.

7. That on one or two occasions he has seen the manipulations produce unfavorable effects, apparently because the heart was too feeble and the patient was fatigued at the time of application.[2] (In this last case it is possible that the massage was too vigorous, or that the manipulator himself was not in good condition. The writer one day had to walk three quarters of a mile in the teeth of a cold wind to give massage to a patient with a weak heart. The result was the only unfavorable one of the kind he had ever had; the patient was unduly fatigued. If he could have ridden to the patient's door, the result would most likely have been different.)

Dr. Albert Abrams[3] finds that any cutaneous stimulant — mechanic, chemic, or electric — will produce diminution of the size of the heart with temporary dilatation of the lungs. Vigorous cutaneous friction by means of a wire brush seemed to afford him results in heart disease nearly as good as those obtained by the more elaborate treatment by means of baths, massage, and exercises. He quotes Moccucci, who sprayed the left half of the abdomen with ether in twelve cases of enlarged spleen with the result of decrease in volume of the spleen in all the cases. In repeating these experiments Dr. Abrams noticed a decided diminution of the size of the spleen in all the people he tried it on, irrespective of the fact whether the spleen was enlarged or not. Ether spray over the heart and over the liver caused decrease in size of both these organs. The results were confirmed not only by percussion, but also by sight, by means of the fluoroscope.

Mass[4] has reported two cases in which patients apparently dead from chloroform syncope were resuscitated by compression in the region of the heart. In both cases, respiration and radial pulse had entirely stopped and the pupils were dilated. The manipulation of the heart in both cases was carried out for over an hour. Compression over the heart was used one hundred and twenty times a minute, and soon after it was begun the pupils became smaller and the paleness of the face disappeared. Afterwards both patients suffered from mental derangement, difficulty of swallowing and speaking, all of which passed off shortly.

Physiologists have not been idle in their efforts to show how weak and failed hearts may be revived; indeed some good men give them credit for leading the way.

If any more confirmatory testimony of the efficacy of massage for weak hearts were needed we certainly have it in the experiments of Professor Prus,[5] in which dogs were suffocated and brought back to life by massage of the heart. The supply of air was shut off by clamping an India-rubber tube which connected the tracheotomy cannula with an artificial respiration apparatus. Immediately after the death of the animals some of the rib cartilages in front of the heart were removed, the pericardial sac was incised, and the heart exposed. After it had been ascertained that there was no trace of any contraction of either auricle or ventricle, Professor Prus waited from fifteen to sixty minutes before he began his efforts at artificial resuscitation. Then the clamp was removed and artificial resuscitation started. The heart was grasped in the right hand so that the thumb rested on the right ventricle, and the four fingers surrounded the left ventricle. Both ventricles were then compressed

[2] Mechano-Therapy in the Treatment of Heart Disease, Dr. T. Stretch Dowse, 1898.

[3] Med. News, Jan. 7, 1899.

[4] Berl. klin. Wochenschr., 1892, No. 12.

[5] Treatment, Oct., 1900, and New York Med. Rec., Nov., 1900.

with moderate force, the compressions being made to imitate the systolic and diastolic action of the heart. In 31 cases, or 70%, life was restored. In chloroformed dogs under the same conditions, 76%, and in dogs shocked by the electric current, 14% were brought back to life. An attempt to try massage of the heart was made on the body of an alcoholic who had committed suicide by hanging, but without success, as might have been expected.

Statistics gleaned from various sources at home and abroad by Prof. Wm. W. Keen, show that of 28 cases of apparent death in the human being, during chloroform narcosis, 42 recovered by massage of the heart. But this treatment should not be relied upon alone. Artificial respiration should also be carried on and the patient should receive sufficient oxygen. For the purpose of restoring vasomotor tone adrenalin should be employed.[6]

In the great zeal to collect statistics on this interesting subject, doubtless many of them come from the same sources. Thus Lanermant has collected 25 cases of whom 4 were restored to life.[7]

Mauclair and Zezas report 28 cases with 6 successful results.[8]

Three methods are employed to do massage of the heart:

1. Incising the anterior wall of the chest so that the hand can grasp the heart.

2. Incising the diaphragm and then passing the hand up from the abdominal cavity.

3. Seizing the heart through the diaphragm without cutting it. In syncope the diaphragm is relaxed enough to render the last method easy. It has given the greatest percentage of recoveries (5 out of 9). It is the least mutilating and the only one that should be employed. Although the number of deaths seems large it should be remembered that all the cases saved would doubtless have died without the use of this method.

When babies are born, if their respiration and circulation are at fault, they are promptly rubbed and slapped without waiting for a diagnosis and usually with the result of bringing them around all right. So the poet of the future may have a chance to express himself with regard to massage somewhat as follows:

When this world you enter if you're gasping for breath,
'Tis the first thing they do to save you from death;
If too soon you would leave this terrestrial sphere
'Tis the last thing they do to keep you long here.

PULSE-PRESSURE ESTIMATION.

BY JAMES J. PUTNAM, M.D., OF BOSTON.

HAVING been interested for some time past in the measurement of pulse-pressure, and having striven to find the best method of estimating its degree by the finger, in the absence of instruments, I have decided upon the following plan as decidedly preferable to any other and as susceptible of being made, through practice, of much value.

The physician, placing himself opposite to his patient, should lay the pulp of his extended (right) forefinger over the patient's (right) radial artery, at the same time interlocking his forefinger and thumb with the forefinger and thumb of the patient's hand. With his disengaged (left) hand, the physician should then grasp the patient's *relaxed* arm, just above the elbow and just below the swell of the biceps, in such a way that with his thumb he may compress the patient's brachial artery against the underlying humerus, while with his fingers he may make counter-pressure on the outer portion of the arm. It becomes, then, very easy to estimate just the amount of muscular effort that is required to close the brachial artery so that the pulse is no longer to be felt by the finger at the wrist, and this effort measures the maximal pressure of the pulse. Even the minimal pressure, that is, the point at which the impulse in the two arteries becomes the same as the compressing thumb is raised, can be estimated better with the aid of the brachial artery, in this fashion, than with the radial alone, and fairly well, provided the physician has been accustomed to take such pressures accurately with an instrument suited for the purpose.

It is astonishing to find what a difference there is between the tension which the compressing thumb and fingers must overcome in the case of a compressible brachial artery, and that in the case of an artery altered through hypertrophy. In well-marked arteriosclerosis the amount of pressure required for complete closure may be so great that the effort exerted in overcoming it must be considerable.

[6] Ther. Gaz., Philadelphia, April 15, 1904.
[7] Rev. de Chir., No. 3, 1906.
[8] *Ibid.*, 111, i, 1906.

New Instrument.

A NEW DEVICE FOR ADJUSTING THE FOREHEAD MIRROR.

BY WILLIAM E. CHENERY, M.D., BOSTON.

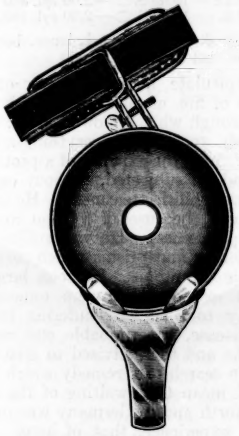
IN operating on the nose and throat I have often desired some form of appliance by which the forehead mirror could be easily and aseptically adjusted. It has been customary to use pieces of aseptic gauze, but this has not been wholly satisfactory.

It occurred to me that a steel spring clamp might be made which could be boiled with the other instruments, and when needed slipped on to the side of the mirror and left there during the operation, thereby giving the operator an aseptic handle which he could use at will to move the mirror in or out of position.

I have had several made and perfected and now present this one which I have called the universal head mirror adjuster.

All users of the forehead mirror will appreciate it. It may be easily applied, fits large and small mirrors and will cling tightly so that the mirror

may be moved in any direction. During ordinary examinations it may also be used so as to



avoid finger prints on the mirror. This will be appreciated by many patients.

The instrument should be applied opposite the attachment to the headband.

Codman and Shurtleff have made the adjuster for me.

Clinical Department.

THE OCULAR AND GENERAL SYMPTOMS IN NASAL OBSTRUCTION. THE REPORT OF AN UNUSUAL CASE.

BY HARRY C. PARKER, M.D., BOSTON,
Clinical Assistant Massachusetts Charitable Eye and Ear Infirmary; Instructor in Ophthalmology, Tufts College Medical School, etc.

After reading Dr. Posey's exhaustive article presented before the Section on Ophthalmology of the American Medical Association in July, 1905, one feels there is little new to offer, showing the intimacy of the relation between the nose and its accessory sinuses and the eye. Although his article dealt with "The ocular symptoms of affections of the accessory sinuses of the nose," I wish he had given more space to those cases of simple nasal obstruction which give rise to ocular symptoms, as severe, and certainly as hard to combat without operative interference, as those of sinus troubles. I refer to the ocular symptoms caused by enlarged turbinates, spurs, deviations of the septum, etc.

There is rarely a day passes in the refraction room of the Massachusetts Charitable Eye and Ear Infirmary without the appearance of several cases which, from the character of their symptoms and the nature of their refractive errors, suggest the necessity of a nasal examination. In this connection I should like to state my hearty agreement with Dr. Edward Jackson in his discussion of Dr. Posey's paper as to the difficulty of recognizing sinus disease. I wish to call attention to the equal difficulty in recognizing cases of simple nasal obstruction, for many cases are reported back as negative by the rhinologist where, from the nature of the symptoms, you are sure a pathological condition exists in the nose, and which will usually be revealed at some subsequent examination.

The greater number of nasal cases have, at some time or another, definite eye symptoms, and the time has come when the oculist must insist, in order to get good results, on the intelligent co-operation of the rhinologist, or else be himself forced to treat the nasal conditions which give rise to ocular symptoms of greater or less severity. Few rhinologists recognize the fact that simple soft turbinate contact with the septum will, in many individuals, give rise to symptoms which will not be relieved at all, or only in part, by correcting errors of refraction or defects in the muscle balance.

The case I wish to report is of interest from the severity and the unusual character of the symptoms presented both ocular and general. My notes follow:

February, 1906. Mr. E. R. consulted me in regard to persistant diplopia and vertigo. His age, forty-one years, married, two healthy children. No history of wife having had a miscarriage. Had always been a hard worker. General health always excellent up to 1899. Denies gonorrhea or syphilis. Myopic as long as he could remember, and had worn glasses constantly from his early youth. His eyes had given him no trouble beyond the handicap of his myopia until 1899, when he developed diplopia. I wish to state here parenthetically that Mr. R. is a man of keen intelligence and not of the neurasthenic type. His diplopia at that time varied in amount for 20 to 60 prism degrees according to the notes of his oculist which he had with him. The diplopia was homonomous, *i.e.*, esophoria, which in itself is extremely unusual in as high a degree of myopia, and his binocular vision was always obtained readily with prisms. His myopia was at that time undercorrected. He was wearing O.D. — 13.00 S. ⊂ — 2.00 cyl. x 180°. O.S. — 12.00 S. ⊂ — 2.00 cyl. x 180. — So full correction — 15.00 S. ⊂ — 2.50 cyl. x 180°. out was given, combined with a 6 △° base out in both eyes. This produced a great discomfort increasing, if possible, diplopia and caused general symptoms, or at least general symptoms appeared at this time, such as numbness of the face, abdominal shooting pains, and the loss of muscle reflexes. He was allowed to wear his weaker lenses without prisms. His case progressed with little or no improvement, so he was taken to an alienist, who examined fully into his history as his oculist had done, and a constitutional cause of any sort could not be found. The slightest chance of syphilis denied except from possible innocent cause, about which the patient had no knowledge. He was told he had irregular tabes, advised to give up business and either rough it out West for a year or go abroad. He chose Europe and shortly after his arrival consulted a prominent oculist in Germany, who insisted he had syphilis and proceeded to give him a severe course of mercurial inunctions, potassium iodide, which by the way he had had in teaspoonful doses three times a day before leaving this country, and quantities of Blaud's pills. This heroic treatment succeeded simply in the

accentuation of all symptoms together with insomnia, loss of weight and appetite.

After four months Mr. R. decided to give up the treatment and left Germany for Switzerland, where, for a period of six or seven months he had no treatment except baths. His symptoms became very much less marked, his weight returned, he was able to sleep, and the diplopia became only transitory. This relief being due in my opinion to the favorable effect of the clear mountain air on his nasal condition and the relief from a severe constitutional treatment which was unnecessary.

After ten months Mr. R. returned to this country very much improved apparently and resumed his work which was active and necessitated long hours. His condition remained fairly satisfactory until 1902, when the symptoms began to return. Early in 1903, he tells me, he had a slight nasal operation which resulted in some improvement. He was again tried with stronger lenses and prisms which again served but to aggravate his symptoms. These continued with more or less discomfort until about six months before his first visit to me when they became much more marked.

My examination showed

V.O.D. — 13.00 S.◯ — 2 cyl. 180 = $\frac{20}{100}$ —
V.O.S. — 12.00 S.◯ — 2 cyl. 180 = $\frac{20}{100}$ —

with full correction

V.O.D. — 16.00 S.◯ — 2.00 cyl. 180 = $\frac{20}{30}$ } $\frac{20}{40}$ —
V.O.S. — 15.00 S.◯ — 2.00 cyl. 180 = $\frac{20}{30}$ } $\frac{20}{40}$ —

This correction verified by retinoscopy and astigmatic charts. *Muscles* — showed 15 △° esophoria. Diplopia homonomous quite easily obtained with a 5 △° prism base out. *Ophthalmoscope* showed clear media, retina apparently normal; optic nerve of good color, each showing choroidal crescent. *General conditions.* Health quite good; weight somewhat below normal; always has had "cold." Knee reflex active. No Romberg symptom. No Argyll-Robertson pupil, although pupils were slightly irregular in size the left being slightly the larger. The portion of his face on the cheek bones, forehead and lips was somewhat anesthetic. He also complained of occasional shooting abdominal pains. Always of late years had had difficulty in nasal breathing.

Nasal examination showed marked nasal obstruction on both sides, caused by large polypoid middle turbinates pressing against the septum, limiting naturally the air passages. Slight nasal discharge, mucoid in type. I suggested the possibility of considerable relief from a thorough nasal operation, also that he had better be looked over carefully by his physician.

Second visit, Feb. 24, 1906. His physician reported physical condition excellent, urine and blood negative, no sign of any organic disease. Muscle test 15 △° esophoria. Fusion with 6 △° base out. Referred to Dr. Goodale for nasal operation. I transmitted at the same time a full report of the case. Dr. Goodale reported back in a few days that he had found it necessary to operate under ether and had removed a portion of each middle turbinate the size of a large lima bean, and had curretted out the anterior ethmoid cells.

Third visit, March 5, 1906. — Esophoria but 6 △° easy fusion without prisms. Mr. R. was allowed to wear his old correction and told to report to me in one month. My patient was not seen, however, until Nov. 27, 1906, eight and a half months later as he had been very comfortable, only at extremely rare intervals having slight attacks of diplopia occurring always after a hard day and lasting but a few moments. He breathed easily through his nose, no longer awakened with dry throat, had no vertigo and no shooting pains; and the area of facial anesthesia much diminished.

Refraction showed an increase in myopia but a greater visual acuity.

V.O.D. — 19.00 S.◯ — 2.00 cyl. 180 = $\frac{20}{10}$
V.O.S. — 16.00 S.◯ — 2.00 cyl. 180 = $\frac{20}{10}$

His muscles showed perfect balance, both with the Maddox rod and the cover tests.

To recapitulate, here is the case of a man in the prime of life, engaged in an active business, forced, through what is now evident, a mistake in diagnosis, to give up everything and undergo the loss of time, the expense of a protracted stay abroad and be subjected, without cause, to an heroic antisyphilitic treatment. He had in 1899 been obliged, because of vertigo and diplopia to give up business. He was subjected to use stronger lenses and prisms which served to aggravate his symptoms. He took large doses of potassium iodide which were unnecessary and was finally told he was suffering from an incurable disease, the probable end result of an old syphilis and then advised to give up all and go forth in search of a remedy which if unavailing would mean the awaiting of the inevitable. He went forth and in Germany was put through his worst experience, that of heroic antisyphilitic treatment, all the while becoming weaker and less able to resist the underlying cause of all his symptoms, which became in consequence the more powerful. Finally, abandoning all treatment in despair he went to Switzerland where, much to his surprise, things began to right themselves, due in all probability to the effect of the dry mountain air on his nasal condition. He returned to this country full of hope that all would be well, only to find after a time his old symptoms returned with greater or less severity and in gradually increasing periods.

It was at this time that he came under my observation and I advised a nasal operation which was followed with immediate relief, and a constant improvement, so that at his last visit to me, nearly nine months after his operation, he was practically free from symptoms.

The conclusions to be drawn from this case are that all cases of stubborn muscular trouble should have a nasal examination and that we should hesitate to operate on the muscles themselves or even prescribe prisms before having the nasal condition looked into. From this and other cases which have come under my observation in private practice and in a large clinic I am convinced that aside from the many evident ocular symptoms there are unusual ocular and also general symptoms, the obscure cause of which may often be found in the nose. I am strongly of the opinion that the far-reaching effect of nasal reflexes is at present but little understood, and that along this line there is much to be learned that we may intelligently untangle many of our knotty problems.

THE LATE PROF. HERMAN COHN of Breslau, has bequeathed the sum of 10,000 marks to each of the universities of Heidelberg, Tübingen and Breslau, the income to be used for prizes for research in ophthalmology. — *Medical Record.*

Book Reviews.

American Practice of Surgery. A Complete System of the Science and Art of Surgery by representative surgeons of the United States of America and Canada. Editors: Joseph D. Bryant, M.D., and Albert H. Buck, M.D., of New York City. Vol. II. New York: William Wood & Co. 1907.

With commendable promptitude the editors have produced this second volume of their Practice of Surgery, the first volume of which recently we had the pleasure of reviewing. In certain respects the second volume is an improvement upon its predecessor. In certain respects volume I is the more interesting of the two. Volume II seems to be more carefully edited, and the selection and arrangement of the contributions seem to be in better co-ordination. Fourteen writers contribute, dealing mainly with general surgical infections and with certain rather uncommon conditions. Much more than half of the volume (437 pages out of 764) constitutes Part VIII. The book is made up of parts VI, VII, VIII, IX and X, and the writers tell of such special infections as leprosy, plague, glanders, anthrax, actinomycosis, etc., in part VI; of tuberculosis and syphilis in Part VII; of abscess, ulcer, gangrene, diseases of the skin, diseases and wounds of muscles, tendons, etc., diseases and wounds of nerves, diseases and wounds of the lymphatic system in Part VIII; of burns and frost bite in Part IX; of wounds of the soft parts and gunshot wounds in Part X.

While the sum total of information imparted is voluminous, admirable and interesting, making up for us an important book of surgical reference, there is nothing in it especially striking or novel. The literature has been studied carefully, painstaking and accurate writers have done their work and the reader may rest assured that he is dealing with a comprehensive and conservative dissertation upon the topics treated.

Outlines of Human Embryology. By George Reese Satterlee, M.A., M.D. New York: John Wiley & Sons. 1906.

This little book of 144 pages in rather large type, with 99 figures copied from various authors, gives a brief *résumé* of the main facts of human embryology. It is interleaved with blank pages for students' notes. The author has presented his subject clearly and briefly and, in the main, accurately, and it is probable that the book will be found useful by those who wish to cram up on the subject. It is not full enough to be of much use as a laboratory manual. Like most books intended essentially for cramming purposes it seems to the reviewer rather far away from practical work and personal acquaintance with embryology.

Essays in Pastoral Medicine. By Austin O'Malley, M.D., Ph.D., LL.D., Pathologist and Ophthalmologist to St. Agnes's Hospital, Philadelphia, and James J. Walsh, M.D., Ph.D., LL.D., Adjunct Professor of Medicine at the New York Polyclinic School for Graduates in Medicine, etc. New York, London and Bombay: Longmans, Green & Co. 1906.

The subject matter of this volume is wide in its scope but is intended to cover those subjects in which the work of the physician and of the pastor meet. The ethics of certain medical questions are portrayed for the benefit of the physician, and the practical bearings of many medical matters are developed for the benefit of the minister who comes close to human suffering in many of its forms. To accomplish this end the authors have written in essay form a series of thirty articles on topics chiefly with social bearings, such, for example, as Cesarean section and craniotomy, heredity, physical disease and moral weakness, unexpected death, the moment of death, the priest in infectious diseases, chronic disease and responsibility, and other more or less similar subjects. We take it that the authors approach their subject from the point of view of the Roman Catholic faith, but the book should be of interest and offers many suggestions of value to the medical profession at large, although it is perhaps open to question how far the clerical and medical professions may combine in these subtle questions.

On Retro-Peritoneal Hernia; being the Arris and Gale Lectures on "The Anatomy and Surgery of the Peritoneal Fossæ"; delivered at the Royal College of Surgeons, England, in 1897. By B. G. A. Moynihan, M.S., F.R.C.S. Second edition revised and in part rewritten by the author and J. F. Dobson, M.S., F.R.C.S. New York: William Wood & Co. 1906.

As Mr. Moynihan states in his preface, this second edition of his well-known monograph is enlarged and completely rewritten, the work being done mainly by Mr. Dobson, with careful revision by the author. There is a large number of excellent illustrations and an admirable, comprehensive index.

One feels on reading the book that retroperitoneal hernia must be a common affliction. Moynihan divides his subject into five chapters, the second and third of which, on duodenal hernia and on hernia in the cecal region, occupy the greater part of his treatise. The reviewer finds no especially important additions to knowledge already current, but many new case histories are recited, and the latest literature is quoted.

This is a useful monograph for students and surgical writers.

Seven German Universities admit women on the same terms as men, and at present they have a total register of 116 women in the medical departments. This is an increase of 56 over the preceding year.—*Jour. Am. Med. Asso.*

THE BOSTON

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FACTORY INSPECTION.

A BILL before the Massachusetts State Legislature regarding the inspection of factories is of more than passing interest to the medical profession. The object of this bill is to transfer certain powers and duties of the inspection department of the district police to the State Board of Health on the general ground that the Board of Health is by its organization and *personnel* more fitted to investigate the questions under consideration.

It appears that a large waste of life is going on in the United States as a result of unsanitary conditions in factories and workshops. It is stated that a conservative estimate of preventable deaths among men under thirty may each year be placed at approximately fourteen thousand. If a human life is worth five thousand dollars as a minimum, this means a yearly waste of seventy million dollars. As a result of industrial conditions, four out of every hundred cigar makers, ten out of every hundred Fall River mill hands, and eighty out of every hundred Northampton cutlery workers are said to die of consumption. Much of this waste is evidently remediable, but to accomplish this result expert knowledge and authority are demanded. Massachusetts was the first state to introduce a system of factory inspection thirty years ago, and now there are twenty-six states exercising a similar supervision, but, unfortunately, this inspection is apt to be perfunctory and does not approach the problem from the point of view of sanitation as would be the case were inspection placed where it more properly belongs in the hands of boards of health. In no single instance does a board of health have charge of this department of public hygiene. In Massachusetts, for example, factory inspection is a subsidiary function of the state police, and it is, therefore, not remarkable that little has been accomplished toward the positive betterment of conditions. As a result of the agitation which this state of affairs has aroused, the Board of Health was directed more than two years ago to investigate the sanitary conditions of factories, workshops and other places of employment in this state. A preliminary report was made in the early part of 1905 which pointed out the evils then existing and urged more stringent laws. The Board of Health was thereupon requested to continue its investigations and a subsequent report has very recently been submitted. From this report it appears that in many industries conditions exist highly prejudicial to the health of the operatives. The mortality among metal and stone workers from diseases of the lungs and the poor conditions existing in many shoe factories on account of faulty ventilation, dusty rooms and generally bad sanitary conditions are worthy of special mention.

Recognizing the existing state of affairs, the natural remedy has suggested itself of applying to the legislature for a law which will provide for inspection by persons expert in hygiene and modern sanitation. It is natural and fitting that the State Board of Health, whose duty it is to care for the health of the community at large, should be given the authority in this matter which will insure really adequate inspection, such as modern conditions demand. To this end the following suggestions are of value: First, there is need of the systematic development of this branch of industrial hygiene; the list of dangerous trades should be revised; it is advisable that more medical men should specialize in sanitary work to the ultimate benefit both of employer and of employee; it is probable that the study of industrial hygiene in this broad sense would provide a link now missing between the community and various forms of social and hospital work.

While in general we are altogether in favor of fixing more definitely the responsibility for unhygienic conditions in factories and places where many work-people are gathered together, the fact should not be lost sight of that reforms which come slowly are usually the most permanent, and that in general the present attitude of public opinion is possibly somewhat too radical in its insistence upon change at any cost. This does not alter the fact that the bill before the legislature is a wise one, and we have so great confi-

dence in the discretion of the State Board of Health that we should have no fear of overdrastic measures if the authority relative to factory inspection were placed in its hands.

THE AMERICAN CLINIC.

That the clinics of medicine and surgery in the United States have developed since their inception along different lines from the clinics abroad, especially the German clinics, is a fact of which no proof is required. That as they now exist the American clinics afford less opportunity and incentive for medical research, and the highest quality of clinical teaching is a condition which we believe most medical men who have seriously considered the situation will admit. Why is it that in America such are the conditions? Adequately to answer the query possibly the history of the foundation and growth of our hospitals and medical schools should be outlined, yet without this the following explanation may be offered: The separation for the most part of university and medical school with the establishment of proprietary medical schools acted to divorce from our medical schools the university interests. Consequently the development of higher university teaching and the university spirit of research did not make itself felt to any great extent in the medical schools. Most hospitals, moreover, in this country were either independent of medical schools or were controlled by men who controlled the medical schools and whose relation to each was a business one,— proprietary medical schools, proprietary hospitals. Hospitals independent of medical schools were either municipal or state institutions or owned by private individuals, in each case managed by those who had no vital interest in medical education. From these conditions resulted an independent development of medical schools and hospitals from which America still suffers. The results of the independent development of university and medical school are rapidly disappearing with the closer union between them which is taking place on every side. Unfortunately, the union of school and hospital is developing far more slowly, and most of our hospitals are still in fact if not in name independent in organization and management. Such hospitals, exceedingly few in number as they are, in which there is no line of division from the medical school, show by their work that herein lies the key to the situation. The ideal clinic of surgery and medicine probably cannot exist in America except where there is an indivisible union between university, medical school and hospital with means to pay attracting salaries, clinical material to place at the disposal of teacher and student, and absolute freedom from all local conditions that might prevent the best man, wherever he live, from being called to positions in school and hospital. Under these conditions the highest type of medical teaching and medical research will be possible.

Such ideas seem to be in the minds of those who are shaping the future of the Harvard Medical School if we can judge from their published opinions. Abundant clinical material Boston has, but this is not all that they desire. Abundant clinical material alone does not make an ideal clinic, and it is the latter for which Harvard is striving. A conception of such an ideal clinic seems to have been lacking in some of those who have criticised the supposed clinical situation at Harvard, or perhaps these critics have failed to recognize that this ideal clinic does not exist in their own city. If that be true they, like the Harvard men, must awake to the necessities of the present, acknowledge squarely a defect in the organization of their clinics and set manfully to work to remove these defects.

The future will show where such clinics will arise. With their possession the medical schools so endowed will be years ahead of their competitors. Whether these clinics come in Boston, New York, Chicago or elsewhere is unimportant so far as the development of American medicine is concerned, but the city in which they develop first will hold prestige in America for medical education and research. Is this not a goal to stimulate the best endeavor of the medical men in every large city? Those in which already exists a medical school that is an integral part of a university have attained an advantage which should act as a heavy handicap against those not yet so well situated. Locally we believe that Boston has the opportunity to attain to this goal.

THE INTERNATIONAL TUBERCULOSIS CONGRESS FOR 1908.

The systematized warfare against tuberculosis which is now being carried on in the United States, was perhaps not inspired by the great international gatherings for the study of that disease, which have been held since the first Paris Congress in 1898, but these meetings have done much to make such a movement possible, by stimulating a world-wide interest in the subject. While no very radical developments as to pathology

or treatment have been brought forward during this period, there has been brought about a much more general recognition of the importance of the subject. In consequence, there has been a large increase in the number of workers in this particular field, with more co-operation among the workers, a growth in the matter of governmental supervision — involving compulsory registration, disinfection of infected dwelling places, etc. — and an increase in the number of sanatoria and dispensaries devoted exclusively to the treatment of this disease. All this has had a very material influence on our vital statistics, both by limiting the number of new infections and by prolonging the lives of those already infected.

Through the invitation of our National Association, the next International Congress on Tuberculosis is to be held in Washington, D. C., in the fall of 1908. Dr. Lawrence F. Flick outlines the plan for this congress in the March number of the *Journal of Outdoor Life*. The last week in September and the first two weeks in October have been tentatively set as the date. The first and last weeks will be occupied in entertaining the visiting delegates in the different cities, while the second week will be devoted to the scientific program in Washington. It is planned to have a series of lectures delivered in Washington by thirty of the most prominent authorities, this series occupying the three weeks and constituting a symposium of exhaustive scope on tuberculosis. Exhibits of the work done in all parts of the world will be presented. As it is the first time that the International Congress has met in the United States, this country should receive an impetus which will be a great factor in carrying on the work of stamping out this disease. The committee has already collected a fund of $30,000, subscribed by a donation of $5,000 from each of six philanthropists and there should be no trouble in carrying out the plan of raising this fund to a sum of at least $100,000.

MEDICAL NOTES.

A MEMBER OF THE CANAL COMMISSION. — Col. W. C. Gorges, M.D., who has done such efficient work as chief sanitary officer of the Isthmian Canal Commission, has been appointed a member of the Commission.

A CHAIR OF HYDROTHERAPY. — It is announced that a chair of hydrotherapy is to be established at the College of Physicians and Surgeons in connection with Columbia University, New York. The funds for the maintenance of this chair are to be provided by a person whose name is withheld.

DEATH OF SIR WILLIAM HINGSTON. — The death of Sir William Hingston, M.D., of Montreal, is announced. He was born in Quebec, in Huntingdon, in 1829, and received his degree in medicine from McGill University. After further study abroad, he returned to Montreal and began the practice of medicine in the year 1853. For many years he has been one of the most prominent physicians in Canada, and was known not only for his skill as a surgeon but also for his wide philanthropic interests. He had from time to time also held many official positions, among others, Mayor of Montreal. He was a member of the Royal College of Surgeons of Edinburgh, and had been the recipient of many honorary degrees. Some years ago he delivered the Shattuck lecture before the Massachusetts Medical Society.

THE SEMI-CENTENNIAL OF THE CINCINNATI ACADEMY OF MEDICINE. — This representative body of the profession of Cincinnati celebrated its semi-centennial at the Hotel Sinton, on Tuesday evening, March 5, with a very enjoyable banquet at which 350 medical men sat down. Dr. J. E. Greiwe, the retiring president, was toastmaster, and speeches were made by Dr. Byron Stanton, the only charter member present, Dr. A. C. Drury, Dr. N. P. Dandridge, Dr. P. S. Connor, Dr. B. P. Good, Dr. S. Nickles, Dr. C. D. Palmer and Governor Bradley of Kentucky. The event was a very happy one and it was probably the most distinguished gathering of Cincinnati physicians which has ever taken place. The election of officers for the following year resulted as follows: President, Dr. F. W. Langdon; first vice-president, Dr. Wm. Gillespie; second vice-president, Dr. John Oliver; secretary, Dr. Mary K. Isham; treasurer, Dr. A. C. Drury.

A DUTTON MEMORIAL PROFESSORSHIP IN TROPICAL MEDICINE. — The Liverpool School of Tropical Medicine desires to raise a fund of £10,000 with which to establish a research professorship in tropical medicine in memory of Dr. Joseph Everett Dutton.

Dr. Dutton served on four successive expeditions sent out by the Liverpool School of Tropical Medicine to Nigeria, the Gambia, Senegambia and the Congo Free State. During the years spent in Africa he did much valuable work, and

by describing Trypanosoma gambiense, the parasite since recognized to be the cause of "Sleeping Sickness," gained the highest distinction for himself and for his school a wide renown.

Dr. Dutton died, aged twenty-nine, at Kasongo, in the center of Africa, when engaged on an expedition sent out to study tropical diseases and especially sleeping sickness. While investigating the previously little known "tick fever" of Central Africa, he contracted that disease and died from its effects.

As a single instance of the benefits conferred on commerce by the recent advances of our knowledge of tropical medicine, the committee in charge of this memorial fund refers to the changes in quarantine laws resulting from the knowledge that yellow fever is transmitted by a mosquito. Costly and vexatious fumigations of mails, baggage and freight are no longer necessary. Tedious quarantines of ships and the ruinous isolation of infected cities are no longer enforced.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, March 13, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 51, typhoid fever 7, measles 15, tuberculosis 48, smallpox 0.

The death-rate of the reported deaths for the week ending March 13, 1907, was 22.86.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, March 9, 1907, was 262, against 250 the corresponding week of last year, showing an increase of 12 deaths and making the death-rate for the week 22.69. Of this number 144 were males and 118 were females; 256 were white and 6 colored; 164 were born in the United States, 92 in foreign countries and 6 unknown; 66 were of American parentage, 164 of foreign parentage and 32 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 49 cases and 3 deaths; scarlatina, 55 cases and 0 deaths; typhoid fever, 7 cases and 0 deaths; measles, 8 cases and 0 deaths; tuberculosis, 47 cases and 36 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 30, whooping cough 1, heart disease 37, bronchitis 9 and marasmus 3. There were 16 deaths from violent causes. The number of children who died under one year was 43; the number under five years 57. The number of persons who died over sixty years of age was 74. The deaths in public institutions were 84.

There were 7 cases and 4 deaths reported from cerebrospinal meningitis during the week.

A Centenarian. — It is announced that Mrs. Ann Mooney, of Westboro, Mass., has died at the age of one hundred and one.

A Hospital for Melrose, Mass. — It is announced that a gift of $25,000 has been received by the Melrose Hospital from Mr. and Mrs. Decius Beebe, subject to the condition that the Hospital Association raise an additional $25,000 within a year. It is expected that the proposed new building will cost in the neighborhood of $50,000.

Report of the Massachusetts Hospital for Epileptics. — The report of the Massachusetts Hospital for Epileptics for the fourteen months ending Nov. 30, 1906, shows continued development of the institution. On the administrative side definite progress has been made and much valuable medical experience in the care of this class of dependents is tabulated. In the report for the trustees, Dr. William N. Bullard, chairman of the board, makes the following pertinent statement which should receive the careful attention of the laity: "During the past fourteen months there have been 42 deaths among the patients and only 17 autopsies. It is extremely important that as large a number of autopsies as possible should be obtained in order to increase our knowledge of the exact conditions occurring in this affection and to enable us to act more efficiently for its relief and cure. Our knowledge cannot be adequately advanced unless we can have the opportunities for proper examination and investigation. These examinations and investigations are not at all, as sometimes seems to be thought, for the benefit of the doctors or even for the institution. They are for the benefit of the public, of the citizens of the state as a whole, and more especially for those living under the affliction of this terrible disease. It is in their name and for their sakes that we demand and shall demand persistently and perseveringly the means to aid them, and attempt to combat, so far as we may, the ignorance and selfishness and stupidity which refuses to help one's neighbor at some sacrifice of personal feeling and prejudice." We miss in the report any statment of the results of treatment. As experience accumulates, we have no doubt such reports will be made. The profession at large is now looking to the hospitals for this information.

NEW YORK.

A CENTENARIAN. — Thomas Hazard Roe, of Newburgh on the Hudson, died on March 7, in the one hundred and first year of his age, having been born in New York City in November, 1806. The family of which he was the oldest representative is famed for its longevity, and he is survived by two sisters, one of whom is over ninety and the other nearly ninety-nine years old.

PASTEURIZATION OF MILK. — There is at present before the board of aldermen, a measure, known as the Freeman bill, which provides that all milk and cream sold in the city which does not come from certified herds and containing not more than 50,000 bacteria to the cubic centimeter, as determined by a triple test made monthly by the Health Department, shall be pasteurized. This, it is believed, would compel the pasteurization of about 90% of the milk supply of New York. On two occasions recently, arguments for and against the measure were heard, and a final hearing is to be given before the bill is acted on.

A CENTENARIAN. — Mrs. Louise Chauncey, of Seneca Falls, Seneca County, N. Y., died on March 1, from influenza, at the age of one hundred and seven years. She was of French descent and was born in mid-ocean on March 10, 1801, while her parents, Jean and Louise Pierott, were on their way to settle in Canada. She and her husband, Joseph Chauncey, whom she originally met in Quebec, lived together for over seventy-five years. He was of the same age as herself, and died seven years ago at the age of one hundred.

HOSPITAL FOR CONTAGIOUS DISEASES. — By a decision of the Court of Appeals on March 5, the city of New York is enabled to proceed with the erection of a hospital for contagious diseases in Hawthorne Street, near Kingston Avenue, Brooklyn. One of the property owners in the vicinity obtained a judgment at Special Term enjoining the city from building the hospital in this location and the Appellate Division of the Supreme Court reversed the judgment. The case was then carried to the Court of Appeals, and this now upholds the latter decision.

DISCUSSION ON TYPHOID FEVER. — At the New York Academy of Medicine on March 7, there was an interesting discussion on typhoid fever and infected water supplies. Dr. Jonathan M. Wainwright of the Moses Taylor Hospital at Scranton, Pa., read a paper in which he described the epidemic in that city last winter and recommended the plan of municipal ownership of water supplies. Under this system, he said, one at least eliminates the harm a private corporation may do during an epidemic in its efforts to safeguard the capital stock at the expense of further disaster to the people. Reports also on the typhoid epidemics in Pittsburg and Berwick, Pa., were read by Dr. J. F. Edward, superintendent of the Pittsburg Bureau of Health, and Dr. J. H. Bowman, of Berwick. Following these papers there was a report on the bacteriology of the blood in typhoid fever, based on analyses of one thousand cases, by Dr. Warren Coleman and B. H. Buxton. In discussing this Dr. E. Libman, assistant pathologist to Mount Sinai Hospital, referred to the reports of contaminated ice taken from the Hudson River and sold in New York. While the ice companies had been blamed, he said, it seemed to him that they were really doing the community a great service. They are accused of selling bad ice, and they turn and ask, "Why do you allow the water to be polluted, so that we get bad ice?" This, he thought, was a very pertinent question.

Obituary.

GEORGE BINGHAM FOWLER, M.D.

DR. GEORGE BINGHAM FOWLER, one of the leading physicians of New York, died on March 6. He had been in poor health for a number of months, but the end came suddenly, and was due to gastric hemorrhage. He was the son of Dr. Edmund Fowler, of Southwick, Mass., and his mother belonged to a distinguished Southern family. He was born in Mason County, Alabama, Oct. 23, 1847, and was educated at the Westfield (Massachusetts) Academy and the College of the City of New York. Later he studied for some time at the University of Heidelberg, and in 1871 was graduated from the College of Physicians and Surgeons, New York. Immediately afterward he became the assistant of Dr. John C. Dalton, the eminent professor of physiology in that school, and in 1872, while still retaining this position was appointed quiz-master in physiology and chemistry. He was also curator of the College Museum. He became a successful practitioner and was well-known as a medical writer. His thorough training in physiology led him to take special interest in diatetics and he was a recognized authority on this subject and on gastro-interstinal diseases. He was the founder and editor of *The Dietetic Gazette*.

Dr. Fowler filled with credit many positions of usefulness and responsibility. For two years he was assistant sanitary superintendent in the New York Health Department. For thirteen years he was medical officer of the Provident Savings Life Insurance Company. From 1886 until the time of his death he was professor of clinical medicine in the New York Post-Graduate

Medical School and Hospital. In 1895 he was appointed Commissioner of the State Board of Health by Governor Morton, and in 1900 a member of the Tenement House Commission of Fifteen by Governor Roosevelt. In the latter year he was elected president of the Medical Society of the County of New York. He was also attending physician to Bellevue Hospital and the New York Infant Asylum, and at the time of his death was consulting physician to Bellevue and to the hospital of the French Benevolent Society.

In addition to his marked ability, much of Dr. Fowler's success was due to his pronounced social instincts. He was one of the most genial of men, excelling as a *raconteur*, and throughout his career his popularity in the various circles with which he was associated was such as few of the profession have attained in New York. He leaves a widow, who was a daughter of the late Dr. Christopher Prince, and three children, one of whom is Dr. Edmund Prince Fowler, who from 1902 until its discontinuance last year was the editor of the directory published by the Medical Society of the County of New York.

Current Literature.

The Journal of the American Medical Association, Feb. 23, 1907.

1. *Meltzer, S. J. *The Factors of Safety in Animal Structure and Animal Economy.*
2. Mettler, L. H. *Clinical Physiopathology.*
3. *Hecht, D. *Hysteria in Children.*
4. Posey, W. C. *Treatment of Simple Chronic Glaucoma by Miotics.*
5. *Butler, G. F. *The Care and Treatment of Inebriates.*
6. Mason, L. D. *The Psychic Treatment of Inebriety.*
7. Foster, N. K. *The Plague in American Cities.*
8. Bok, E. *The Physician and the Nostrum.*
9. *Ashburn, P. M., and Craig, C. F. *Study of Tropical Diseases in the Philippine Islands.*

1. Meltzer, noticing the tendency of some writers to emphasize the economy of nature in the animal organism, both as to material and energy, points out that the factor of safety in the body — the surplus above that which is demanded — is far greater than that which is required in artificial structures. For example, he refers to the bilateral organs, each of which is more than capable of supplying the place of both, the kidneys, the ovaries, the thyroids, the adrenals, etc. In the non-paired organs the same prodigality of tissue and functional capacity is apparent, some organs possess at least twice as much tissue as a maximum of normal activity would require; and in other organs, especially those with an internal secretion, the margin of safety amounts sometimes to ten to fifteen times the actual need. He does not think it probable that tissues are usually inactive, such must be the exception, but they work normally only a fraction of their capacity. The power of self-repair is, moreover, a safety factor far beyond anything in human-made machines. While noting some partial exceptions, the rule seems to be that the organs of the body are built on a plan of a surplus of structure and energy, and Meltzer therefore is inclined to question the theory advanced by some that a minimum, say of proteid ingestion, is the optimum or ideal. There are no facts that support it, and on the other hand there are facts that point the other way, such as the abundant secretion of proteolytic enzymes and the excessive capacity of the digestive tract for the absorption of proteids. These seem to be fair evidence that Nature intended this surplus of material and capacity to be used. The function of supply of tissue and energy by means of proteid food should, he holds, be governed by the same principle of affluence that has controlled the entire construction of the animal for the safety of its life and the perpetuation of its species. In conclusion he remarks that the factors of safety have an important part in the process of natural selection. The species best provided with a surplus of structure and energy, and thus fitted to meet emergencies, are most likely to survive in the struggle for existence.

3. Hecht says that hysteria in children has not received the attention it deserves and that its frequency is underestimated. He does not attribute it especially to defective modern methods of education or to a luxurious civilization, since statistics show that it is not confined to those who are specially liable to be affected by such, but is found as often in the children of the poor and ignorant as in those of the rich, and that the major types are recruited more from isolated rural districts than from urban centers. It is useless to look for all the so-called stigmata and accidents of adult hysteria in the child; juvenile hysteria in its objective manifestations is chiefly monosymptomatic, and a single hysterical symptom, standing out in bold relief in the child should, from its very prominence, arouse suspicion as to its functional nature. Motor symptoms prevail; sensory symptoms, according to Hecht, are rarely noted in children, and when they are, are usually of the hyperesthetic type. When an anesthetic zone, suggested or not, appears, it is of the same sharply demarcated, unanatomic type as in adults. Hysterical motor agitation shows itself largely in the form of choreic movements, a variety of facial spasms, convulsive tics and epileptoid seizures. The graver forms of the latter are frequently mistaken for epilepsy, and those of somewhat lesser degree are conveniently evaded with a diagnosis of hystero-epilepsy, a practice to which Hecht objects. As regards diagnosis, Hecht favors the Möbius dictum in dubious cases that "such symptoms may be regarded as hysterical, which cannot be voluntarily produced or which may be simulated." The greatest difficulty is often not so much to avoid mistaking organic disease for hysteria and *vice versa*, as in failing to appreciate that organic disease may, and frequently does, complicate hysteria. We should study the child's temperament, remember its imitative faculty and in all conditions with a prominence of doubtful symptoms, think of hysteria as a not impossible factor. The prognosis is infinitely better than in adults, and as a rule, the younger the child the better. The fundamental law of treatment is that all hysteric symptoms are psychic, and the means of cure can only be psychic, *i. e.*, acting on and through the patient's mind. An early and positive diagnosis favors an early and complete cure. Isolation is imperative when the cordial and efficient co-operation of friends and parents cannot be had. After a cure in isolation has been secured the patients should not be returned too soon to their former associations. Hecht refers with some little detail to Bruns' methods of treatment of these cases, the "method of surprise" and the "method of disregard" and considers the objections that have been made to them rather weak. Unpleasant and even slightly painful methods applied with due judgment may be successful in properly selected cases.

5. Inebriates are classified by Butler as congenital defectives, weak-willed instabilities, accidental inebriates, hysteric inebriates, periodic inebriates and inebriates with an acquired nervous constitution. The congenital is frequently of the pseudo-criminal variety. The weak-willed inebriates are often irritably exhausted individuals, frequently lithemic. They often improve under treatment to relapse again, when it is discontinued. The third type includes those who have had their moral inhibiting power overthrown by shock, etc., and mental and physical depression. The physical condition of these patients needs attention. Liver, skin and lungs, as well as the general nerve tone, and medical care of the rest-cure variety are often very useful. In none of these three types can the promise of the patient to abstain from liquors be entirely depended on, but the signing of the pledge as a suggestive measure may be potent under favorable conditions. The periodical drinker is considered by Butler not as an inebriate, but as a victim of periodical insanity akin to the epileptic form. The neurasthenic and hysteric types,

due sometimes to shock or traumatism, are noticed, and the possibility of cure mentioned, but the paranoiac type is practically hopeless, except in cases in which there may be a good mental background which keeps the paranoiac tendency somewhat under control, and which may be aided by removal of sources of irritation. Three of these types require medical supervision. There is no specific treatment for inebriety. It is the patient, not the disease that requires treatment. The inebriate requires restful sleep and nerve tonics. Balneotherapy in all its varieties is beneficial. The diet should be regulated; red meats and starches should be reduced, while fats should be increased. Protracted medical supervision is needed, otherwise failure results. Moral influence, suggestion, diversions, exercise and words in a special institution under medical control, are spoken of as necessary, and the increase of the number of such institutions is considered exceedingly advisable.

9. Ashburn and Craig have studied the development of Filaria philippinensis in the body of the mosquito, Culex fatigans. They found that this mosquito, in drawing blood from an infected patient, manages to take in, in some way or other, forty or fifty times as many filariæ as can be obtained by a needle puncture; some of the insects themselves apparently succumb to the infection, and in other cases the filariæ do not develop, but all die after ingestion. The great majority are dead the third day; it is apparently the exception to be able to find insects in which the life cycle of the parasite can be observed. The worm seems to develop in the thoracic muscles, the changes noted are described and a fuller account is promised when sufficient material can have been observed. At present the authors believe that the life cycle of F. philippinensis will be found to resemble closely that of F. bancrofti. The authors remark on the uncertainty of laboratory methods for the early diagnosis of cholera. Pure, or even approximately pure, cultures of the cholera vibrio are not easily obtained from the stools and in fact only once have they seen such a predominance of the germs in the stool as to give it, microscopically, the appearance of a pure culture. They have also investigated dengue, and, it not being a dangerous disease, they have been able to obtain plenty of volunteers for inoculation experiments, no demonstrable organism being discovered by blood examination. From the results of work, already done and what is in view, the authors hope to be able to demonstrate that: (1) The cause of dengue is present in the blood of the infected individual, as the intravenous inoculation of healthy men with blood from a patient suffering from dengue is followed by a typical attack of the disease. (2) The organism causing the disease is probably ultramicroscopic in size, as the inoculation of infected blood into healthy men after it has been passed through a filter which retains the smallest known organism, produces a typical attack of dengue. (3) The incubation period is four days, whether filtered or unfiltered blood be used in inoculation. (4) The disease is not contagious. (5) Dengue is transmitted by at least one species of mosquito (Culex fatigans), as proved by experiment.

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.
FEBRUARY, 1907.

1. *BORDLEY, J. *Trachoma in the American Negro Race.*
2. MORSE, E. *Four Cases of Membranous Dysmenorrhea.*
3. KNOX, J. H. M. *The Medical Life of Oliver Wendell Holmes.*
4. *EMERSON, C. P. *The Blood in Pernicious Anemia.*
5. *WROTH, P. *The Volume and the Color Index of the Red Corpuscles.*
6. *CALVERT, W. J. *Pulsating Empyema.*

1. Bordley's paper may be summarized as follows: Trachoma in the American negro does not exist.

4. Emerson has analyzed the blood findings in eighty-nine cases of pernicious anemia at the Johns Hopkins Hospital. In the results the value of the accepted features of the disease is well sustained. The low red count, the degenerations in the red cells, with abnormalities in size and form, the occurrence of nucleated red cells, the hemoglobin per cent reduced in somewhat less degree than the red count were all manifest. The conditions present at entrance to the hospital showed in a striking manner the absence of exact relation between the degree of anemia and the patient's general condition. The red counts in patients whose symptoms forced them to give up work and to enter the hospital varied from 500,000 to 4,000,000; in a majority, however, the red count was under 2,000,000. A characteristic of the disease is the variability of the number of red corpuscles in each case from week to week. In many cases a periodic rise and fall of their number was observed. The counts within forty-eight hours of death varied from 376,000 to 2,704,000, again showing the non-parallelism between clinical and blood conditions, It is thought that a rise of red count just before death may be due to diminution of plasma. Nucleated red cells were present at some time in 62 out of 74 cases. These are classified as normoblasts, intermediates, and megaloblasts, by comparison with observations of the bone marrow of infants. They fall mainly into two classes, separated by a number of differences but most distinctly by the size of the nucleus, — that of the normoblast being of approximately half the diameter of a normal red blood corpuscle, that of the megaloblast being at least as large as the ordinary red cell. Cells not corresponding exactly with the characteristics of either class, the intermediate cells, seemed to have much the same significance as megaloblasts. In a majority of the cases all three forms were present. The hemoglobin was reduced roughly in proportion to the red count, giving a color index of about one. The white count was generally low, with a relative lymphocytosis in almost all cases. Eosinophilia in some cases was associated with improvement in the red count. Myelocytes were present in small numbers in 28 of the cases. The so-called blood crises in which great numbers of blasts appear in the peripheral blood, were observed 14 times, normoblasts predominating in 5 crises and megaloblasts in 9. The counts in all cases of special interest are tabulated and compared to illustrate points mentioned.

5. Wroth reports the results of blood examinations in confirmation of the findings of Capps as to the "volume index," the ratio of the volume of red cells (determined by the hematocrit) to the hemoglobin, as opposed to the "color index" or ratio of the red count percentage to the hemoglobin. He further compares the color index and the volume index with the "new color index" of Emerson or ratio of the number of grams of hemoglobin per million cells to the normal. His observations are too few and too full of changes in methods to serve as a basis for conclusions. The three indices were roughly parallel but the "new color index" was generally the highest.

6. Calvert's paper is a brief note to supplement a previous paper, to which he refers, by experimental evidence. The pulsating empyema must receive its impulse from the heart or from the aorta. Pulsation of the heart, as exerted for instance upon the pericardium distended with fluid, is diastolic, due to expansion of the heart during diastole. An empyema, therefore, which has a systolic pulsation must receive its impulse not from the heart but from the aorta

THE JOURNAL OF EXPERIMENTAL MEDICINE.
JAN. 23, 1907.

1. *THAYER, W. S., and HAZEN, H. H. *Calcification of the Breast Following a Typhoid Abscess.*
2. MADSEN, T., and NOGUCHI, H. *Toxins and Antitoxins.*
3. *CAPPS, J. A., and SMITH, J. F. *The Leukolytic Action of the Blood Serum of Cases of Leukemia Treated with X-ray.*
4. SYMMERS, D. *The Cytology of Multiple Non-inflammatory Necrosis of the Liver.*
5. SOLLMAN, T., WILLIAMS, W., and BRIGGS, C. E. *Experimental Atresia of the Ureter.*
6. ALLEN, D. P., and PARKER, H. P. *Hydronephrosis of Right Kidney, Atresia of Left Ureter.*
7. FIELD, C. W., and TEAGUE, O. *Electrical Charge of Toxin and Antitoxin.*
8. *HERRICK, F. C. *The Cause of Increased Portal Pressure in Portal Cirrhosis.*

1. Thayer and Hazen report a case of typhoid abscess in a patient who had been given large amounts of calcium lactate; after opening and packing with iodoform extensive calcification occurred all about the cavity. On the ground of observations in animals it is thought that the

iodoform dressing was influential in inducing this calcium deposit. Following this the intake and output of calcium were measured. Under diet of milk and eggs there was calcium retention. Under carbohydrate free diet there was an excess of calcium elimination, and the calcification in thirty-six days entirely disappeared.

3. Capps and Smith have performed a number of experiments with the blood of leukemic patients. They have found that the serum of leukemic patients exposed to the x-ray produced when injected into animals a marked fall in the number of leukocytes of those animals. Normal human serum and leukemic blood not exposed to x-rays had no such effect. The blood of leukemic patients exposed to the x-ray was also observed in hanging drop to have a decided leukolytic action upon normal or leukemic human blood, and also an agglutinating power over the erythrocytes. The leukolytic power of this serum in animals and in human blood under the microscope suggested a trial of its use in leukemia in human beings. This they were able to do on three occasions in one case. From 4 to 10 cc. of serum from a patient who had improved under the x-ray was injected into a patient who had been without treatment and steadily growing worse for three months. After each injection a marked fall of the white count occurred within forty-eight hours. The improvement, however, was not permanent, for the count rose again to its original number after each fall. The patient at the last two injections seemed to be acquiring an immunity to the leukolytic action of the serum.

8. Herrick's article describes his investigations of the circulatory conditions in portal cirrhosis. The results seem to establish facts of great importance in the pathological physiology of the disease. The existence of increased blood pressure in the portal circulation is well recognized, but has hitherto been attributed to *obstruction* to the portal vessels by fibrosis and its contraction. Herrick's experiments seem to prove that the increased pressure is due rather to an abnormal anastomosis between the hepatic artery and the inter-lobular branches of the portal vein. In the microscopic anatomy of the liver, it is to be remembered, branches of the hepatic artery and of the portal vein both terminate in the inter-lobular spaces, discharging their blood into a common network of capillaries which lead to the intra-lobular branches of the hepatic vein. The arterial supply of the fibrous tissue of a cirrhotic tissue is increased. Thus it is easily conceivable that such an anastomosis as is suggested might occur. That it does occur is the inference from the following experiments. Normal livers and typical cirrhotic livers were washed free from blood, with precautions against injury in the process, and transfused through the portal vein and hepatic artery, with salt solution under measured pressure. Beginning with low pressures in both vessels and gradually increasing the arterial pressure, it was found that in normal livers the portal pressure rose but 1 mm. for every 40 mm. of arterial pressure increase, whereas in the cirrhotic livers the portal pressure rose 1 mm. for every 6 mm. of arterial pressure increase. That obstruction of portal veins is not a cause of the increased pressure is shown by the fact that under equal pressures a greater volume of blood, in proportion even to the weight of the liver, flowed through portal veins of the cirrhotic than of the normal livers, showing an increased instead of a diminished vascular capacity. It is probable, therefore, that the communication of the arterial pressure to the portal pressure by direct anastomosis is an important factor in explanation of the increased portal pressure in portal cirrhosis.

THE LANCET.
FEB. 16, 1907.

1. EVANS, W. H. *Leucoderma and Analogous Changes in the Pigmentation of the Skin.*
2. *ELMSLIE, R. C. *Injury and Deformity of the Epiphysis of the Head of the Femur: Coxa Vara.*
3. PHILLIPS, S. *Some Affections of the Pancreas.* (Continued article.)
4. LITTLEWOOD, H. *A Large Vesical Calculus (18 oz. 5 dr.) Successfully Removed by the Suprapubic Operation.*
5. PRATT, E., and LOCKYER, C. *A Case of Cancer of the Esophagus of Unusual Type.*
6. BUSHNELL, F. G. *Note on the Value of Bacteriological Examinations of the Blood in Typhoid Fever and Other Bacteriemias.*

2. This is a study of 62 cases of coxa vara, most of which have been under the writer's personal observation. X-ray shows that more than one anatomical peculiarity is included under the term, but that in the majority of instances the origin of the deformity is connected with the mode of growth of the neck of the femur. Coxa valga is a rare condition seldom clinically demonstrable, in which the angle of the head of the femur to the shaft remains in adult life the same as it is in fetal life. Coxa vara, the opposite of this, was first described by Florani in 1881. The varieties are: (1) Congenital, (2) infantile, (3) adolescent, (4) the result of diseases causing softening of bone, (5) the result of acute or chronic inflammatory processes, (6) osteo-arthritis, (7) traumatic. The writer takes up these varieties under the heads of diagnosis, prognosis and treatment, and covers the ground carefully.

BRITISH MEDICAL JOURNAL.
FEB. 16, 1907.

1. BUTLER, H. T. *The Objects of Hunter's Life and the Manner in which he Accomplished Them.*
2. JAMIESON, W. A. *Clinical Remarks on Ichthyosis and Its Treatment.*
3. *JONES, H. L. *The Treatment of Rodent Ulcer by Zinc Ions.*
4. *SHERREN, J. *A Clinical Lecture on a Case of Secondary Suture of the Great Sciatic Nerve.*
5. *FLETCHER, H. M., and ROBINSON, H. B. *A Case of Idiopathic Dilatation of the Rectum and of the Colon as far as the Hepatic Flexure.*
6. *FORSYTH, D. *Observations on the Parathyroids and Accessory Thyroids in Man.*
7. GREENWOOD, M. *The Influence of Increased Barometric Pressure on Man. Saturation of the Tissue Fluids with Nitrogen.*

3. Jones describes the results of treating six cases of rodent ulcer by zinc ions. The idea is quite new, the technic not difficult and his results excellent.

4. Sherren reports an interesting case of suture of the great sciatic and lesser sciatic nerves which was done five years after the accident which divided the nerves. The patient had little motion in his leg and came for treatment of deep pressure ulcers of the foot. The case is described in detail as to operation, and the extent and character of loss of sensibility before and after operation. The result has so far been very satisfactory.

5. This paper is based on a case of dilatation of the rectum in a boy of twelve. Although his abdomen was always large and he was moderately constipated, there were no acute symptoms till he was brought to the hospital for sudden increase in size of the belly, marked constipation and abdominal pain. On operation there was found an enormous dilatation of the rectum and colon as far as the hepatic flexure, out of which many pounds of feces were squeezed through the anus. No constriction was found. Temporary recovery ensued with normal function of the bowels. Two years later, having had some moderate attacks of constipation in the meanwhile, he was readmitted to the hospital in coma and soon died. The results of the autopsy are given in detail. The rectum measured 19½ inches in circumference. The points of clinical interest are the absence of symptoms in early life, the sudden onset of acute symptoms, the great improvement in general health after an operation which consisted merely in completely clearing the gut, the duration of the improvement and the sudden termination with coma.

6. This is a preliminary communication on the mode of investigation, the number, position and appearance of the parathyroids, the age at which they occur, and the relation to the accessory thyroids.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, NO. 7.
FEB. 14, 1907.

1. FÜRBRINGER. *The Treatment of Impotence.*
2. KOLACZEK, H. *A Simple Means to Distinguish Tuberculous Pus.*
3. *SIEBERT, K. *The Prevention of Mercurial Stomatitis by Means of Isoform Tooth Powder.*

4. WOLFF-EISMER, A. *Experience with Hay Fever for 1906.*
5. THEOBOLD. *Antisepsis in Obstetrics.*
6. KLEIN, J. *The Artificial Dilatation of the Cervix during Labor and Pregnancy. A Review of the Modern Literature.*
7. DAVIDSOHN, F. *Protective Appliances in the X-Ray Room.*
8. GOLDMANN, F. *The Preparation of Protargol.*
9. EIJKMAN, C. *The Cause of the Inhibition of Growth in Bacterial Cultures.*

3. One of the chief obstacles to a thorough mercurial treatment is the occurrence of mercurial stomatitis. This is probably due to an invasion by bacteria, after the gums have become swollen and lowered in their resistance owing to the direct action of the mercury. The destruction of the bacteria about the teeth is, therefore, the chief means of preventing stomatitis. Siebert made experiments with most of the usual mouth washes, and found that their effect upon the bacteria of the mouth was very slight. By using a tooth powder containing 5% isoform ("saluferrin") he was able to produce in himself a marked reduction in the bacteria of the mouth, which lasted a number of hours. Out of 45 patients receiving mercurial cures and using this tooth powder three times a day, none developed stomatitis, although no mouth washes were used.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 7.
FEB. 12, 1907.

1. ZIELER, K. *The Action of the Modern Gonorrhea Therapy.*
2. *HILDEBRANDT. *The Etiology of Erythema Nodosum.*
3. *THORSBECKEN, O. *The Treatment of Diabetes when Complicated by Phthisis.*
4. BAB, H. *The Nature of the Spirochete Pallida.*
5. FREY, C. *A Form of Lens with Double Focus.*
6. STERN, C., and HESSE. *The Action of the Uviol Light on the Skin, and Its Use in Dermatology.*
7. ZACHARIAS, P. *Parturition in an Advanced Case of Tabes Dorsalis.*

2. Hildebrandt reports a case of erythema nodosum in which it seems probable that the tubercle bacillus was the causative agent. The patient, a twenty-four-year old cook with a history of scrofula in childhood, was under observation for nine months. During this time, there were frequent attacks of erythema complicated with multiple serositis, (both pleuræ and pericardium). Blood withdrawn from the patient infected two guinea pigs with tuberculosis. The concurrence of erythema nodosum with tuberculous manifestations has been frequently reported, and it seems very possible that some cases of erythema are caused by the tubercle bacillus.

3. It often happens that when a diabetic contracts phthisis, the latter disease is considered the more important of the two, and the patient is put on an unrestricted diet for that reason. Thorsbecken believes that this is a pernicious practice, for the tubercle bacillus like many other bacteria grows better on media containing sugar. The first aim in such a case should be to render the urine sugar free, and this alone may be sufficient to bring the tuberculous process to a standstill, as in a case observed by the author and another reported by Naunyn.

BERLINER KLINISCHE WOCHENSCHRIFT, No. 53.
DEC. 31, 1906.

1. WEIL and AXAMIT. *Free Receptors.*
2. *SITSEN, A. E. *Myasthenia Gravis.*
3. TUPNIK, L. *The Relations of the Meningococcus to the Gonococcus.*

2. This article contains the autopsy report of a case previously reported by Pel, and a table of the thirty cases in which autopsy has been performed. No constant lesions have been found in myasthenia gravis.

JAN. 7, 1907.

1. *HEUBNER, O. *Orthotic Albuminuria.*
2. HILDEBRAND, O. *Contusions of the Abdomen.*
3. WASSERMANN, A. *The Diagnostic Significance of Specific Absorption of the Complement.*
4. MOSSE, M. *Some Rare Disturbances in Exophthalmic Goitre.*
5. HARTOG, C. *When shall Patients Get up after Laparotomy?*
6. *MARMOREK, A. *Tuberculous Septicemia.*

1. Orthotic, orthostatic or postural albuminuria is that form in which albumin is found in the urine on the assumption of the standing posture and promptly disappears when the patient lies down. It occurs exclusively in children and adolescents, and is to be distinguished from the physiological albuminuria occurring after excessive exertion or cold baths, and from that form which occurs only after heavy meals. It is often assumed to be a manifestation of nephritis, but this, according to Heubner, is not the case. He believes that it is due purely to circulatory changes and quotes several investigators who have found abnormal conditions of the circulatory apparatus in these cases. The work of Adele was especially significant; he found that orthotics showed on arising a fall instead of a rise in blood pressure. Heubner reports the first autopsy of a case of orthotic albuminuria. As was to be expected in case his views were correct, the kidneys showed no changes of any account, either macroscopically or microscopically. An obsolete focus of tuberculosis was found at the apex of one lung, a point of interest in connection with the somewhat frequent occurrence of tuberculosis in the cases previously reported.

6. Marmorek, working with guinea pigs, found that in the experimental tuberculosis of these animals there is always a septicemia; bacilli could always, after a varying interval, be demonstrated in the blood by means of animal inoculation. The number of bacilli was always comparatively small, so that they could not be demonstrated microscopically. The animals lived for weeks after the presence of tubercle bacilli had been demonstrated in the blood. That the guinea pig is not absolutely defenceless towards tubercle was shown by the fact that the bacilli obtained from the blood showed a decided loss of virulence. Although tuberculosis in the guinea-pig is a progressive disease, while in man it has a marked tendency to become localized, Marmorek considers it probable that in man also a septicemia exists at certain stages; that it has not been demonstrated oftener is due to the faulty methods employed.

Immediate and Remote Consequences of Cranial Injuries. As a basis of discussion for the Carpenter Lecture before the New York Academy of Medicine, CUSHING (*New York Med. Jour.*, Nos. 3, 4, 5, 1907) related the histories of three cases of intracranial hemorrhage; the first, extradural; the second, subcortical; the third, intermeningeal. The first case sustained a basal fracture with rupture of the meningeal artery. There were evidences of compression without preceding concussion. An exploratory craniotomy was done, the clot removed, and bleeding controlled by a gauze pack. Until this pack was removed the aphasia and paralysis present before operation persisted. The patient was discharged well but returned three years later with a pulsating exophthalmos and a roaring noise inside the head due to an arterio-venous aneurism. Ligation of the internal carotid was ineffectual. In the second case reported, the hemorrhage was due to a penetrating stab wound of the skull. A blood clot was found under the cortex in the post-central region, which had caused astereognosis, crossed sensory disturbances and word blindness. All these disappeared rapidly on removal of the clot, except the astereognosis which persisted for about three months. Hemorrhage in the third case was due to a bullet which passed obliquely through the left frontal lobe. There followed attacks of epilepsy with vocal aura. Adhesions were separated and the bullet, lying just beneath the cortex, was extracted. Though the subjective symptoms were much relieved the epileptic attacks continued. Cushing discusses the points illustrated by these cases very fully. It has been his experience that cases of head injury which are without much doubt on the way to recovery without operative intervention receive much benefit from a craniotomy as a decompressive measure. He relates in this connection two cases

presenting the usual symptoms of a moderate degree of compression, with some stupor, much headache, nausea, irritability and slowed pulse. Both entered the hospital within twenty-four hours of each other. In neither was there any doubt of their ultimate "recovery" without an operation. In both there was subdural hemorrhage (shown by lumbar puncture) and choked disk. The more dull and stuporous of the two was operated on; an old subdural clot removed, and the region drained for forty-eight hours. This patient was bright and free from headache on the next day; the second, however, was somnolent, and having changed but little a week later, he in turn was subjected to craniotomy with marked relief. Cranial surgery, to be successful, demands a wide and detailed knowledge in the interpretation of the signs and symptoms due to cerebral injury. Lumbar puncture, blood pressure measurements, and especially examination of the eye grounds, are of great value. At operation the control of hemorrhage by a tourniquet is important. An apparatus for performing artificial respiration should always be at hand, as well as a unipolar electrode for cortical stimulation. The lecture well illustrates the marked progress which has been made in this branch of surgery during the past few years and will be read with interest and profit by all interested in the subject.

Some Common Misconceptions in the Pathological Physiology of the Circulation. Janeway (*New York Med. Jour.*, Feb. 2, 1907) speaks first of the sudden death in acute disease commonly but wrongly attributed to "heart failure." He calls attention to the similarity which exists between the final collapse in pneumonia and surgical shock, also to the fact that at autopsy in contrast to the findings in heart disease there is found no right-sided engorgement. He quotes the results of the experiments of Romberg and his pupils upon rabbits inoculated with various infections, which showed that the final cause of death was not heart failure but vasomotor failure or collapse. These results, reported seven years ago and never controverted, may be accepted. Clinically this collapse comes suddenly. The earliest sign of its approach is the loss of the normal reflex rise of blood pressure from reflex stimuli. This, however, can rarely be tested. At present our most reliable warning is a falling blood pressure with a rising pulse rate. Therapeutically, our aim must be to support vasomotor tone. Romberg found strychnine of no value, and digitalis, caffein and camphor of only temporary benefit. Barium chloride, adrenalin and saline infusions are of somewhat greater benefit, but at best drug treatment is of little avail. In prevention of the final collapse our main reliance must be the guarding of the nervous system against injurious influences and in the tonic effect of bathing as in typhoid. The Nauheim bath treatment deserves further trial.

Persistent high blood pressure is the second condition discussed. Recognition of this abnormality has led to much harm, since it has caused clinicians to attempt to reduce the blood pressure without consideration of other indications. It is now well established that the hypertension is a compensatory phenomenon, necessary to make up for diseased kidneys, sclerosed arteries or other conditions still obscure. The treatment is in early cases directed toward prevention alone. The diet should be regulated, particularly as to avoidance of excess of proteid and liquids. Moderation in exercise is essential. Small doses of iodide may be of benefit. In the later stages the danger most to be feared is insufficiency of the left ventricle. For this digitalis is urgently indicated, and a rise of blood pressure is to be welcomed. Vasodilators or venesection may sometimes be indicated for cerebral hemorrhage, uremic convulsions or anginal seizures, but in most conditions the hypertension is to be maintained and supported.

The House Fly and Its Connection with Disease Dissemination. Dickinson (*Med. Rec.*, Jan. 26, 1907) states that of the seven different varieties of flies found in our houses the common house fly (*Musca domestica*) makes up 98%. They are born in manure or in decomposing matter of any kind. Their tastes are indelicate and omnivorous, and they subsist on sputum, fecal juices, and the slime and dirt that stick to exposed surfaces. The writer reports the results of experiments by various investigators. He declares that the importance of flies as a factor in the dissemination of diseases depends largely upon other existing conditions. The possibility of a spread of any type of infectious disease by this insect has been conclusively proved. From experiments the relative danger is as follows: the dejecta, the proboscis, the crushed or ingested insect and the outside parts. The writer declares that scientifically speaking the number of flies in a community is in direct proportion to the carelessness of its sanitation. The greatest care should be taken to destroy as many of these insects as possible and to protect houses and their contents from those that remain.

The Theory of the Toxic Origin of Pernicious Anemia. Hollis and Ditman (*Med. Rec.*, Feb. 2, 1907) describe various experiments that have been carried on in the search for knowledge concerning pernicious anemia. Herter has recently demonstrated the more or less constant presence of certain forms of anaërobic bacteria in the contents of the large intestine. These bacteria can break down proteids into a form which is used by other putrefactive bacteria, among which are the indol-forming organisms. Indol occurs quite uniformly in excess in pernicious anemia. Indol produces toxic symptoms in animals whose oxidizing capacity has been decreased. The anaërobic bacteria are limited to the large intestine where they can be reached by therapeutic measures introduced into the lower end of the gastro-intestinal canal. Irrigation of or local applications in the colon are suggested as a means for their removal. The clinical results of the treatment by colon irrigation in these cases are very happy.

Miscellany.

LORD LISTER'S EIGHTIETH BIRTHDAY.

April 4, 1907, will be the eightieth anniversary of Lord Lister's birth, and it seems proper that the occasion should be taken to convey to him in some appropriate way the admiration and affectionate esteem with which his work and his character have inspired his contemporaries. From Dr. C. J. Martin, the Director of the Lister Institute, has come the happy suggestion that the best form which this expression could take would be the republication of all his scientific papers, prefaced by a biography which would contain an account of the part played by the genius of Lister in the development of our knowledge of infectious processes and the history of his efforts to obviate wound infection, the successful result of which initiated a new era in surgery. As Lord Lister's original papers are scattered throughout the medical and scientific publications of this country it is thought that a very large number of professional and scientific men in Great Britain and the British colonies and dependencies, in America, and also on the continent of Europe, might be glad to have the collected works of one whose contribution to medical science during the last forty years has made him pre-eminent amongst his countrymen. A number of Lord Lister's friends and admirers have expressed their warm approval of this means of celebrating his birthday, and a committee representative of medicine and science is being formed to determine how the above object can best be attained. Dr. C. J. Martin will be glad to receive at the Lister Institute, Chelsea Gardens, S. W., the names of those who desire to take part in this tribute. — *British Medical Journal.*

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 2, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,694	449	Quincy	7	—
Chicago	786	221	Waltham	9	1
Philadelphia	—	—	Gloucester	—	—
St. Louis	—	—	Pittsfield	11	3
Baltimore	251	63	Brookline	6	—
Cleveland	—	—	North Adams	11	1
Buffalo	—	—	Chicopee	11	4
Pittsburg	—	—	Northampton	12	1
Cincinnati	—	—	Medford	12	2
Milwaukee	—	—	Beverly	4	—
Washington	—	—	Hyde Park	4	0
Providence	115	29	Newburyport	—	—
Boston	225	58	Leominster	4	1
Worcester	47	13	Melrose	—	—
Fall River	48	24	Woburn	2	1
Cambridge	34	5	Marlborough	4	0
Lowell	44	16	Westfield	5	1
Lynn	26	3	Peabody	—	—
New Bedford	28	6	Revere	7	1
Springfield	27	5	Clinton	3	1
Lawrence	36	16	Attleboro	4	2
Somerville	24	8	Adams	—	—
Holyoke	14	2	Gardner	4	3
Brockton	16	5	Milford	—	—
Malden	12	4	Weymouth	8	1
Salem	10	3	Framingham	4	2
Chelsea	9	4	Watertown	1	—
Haverhill	12	2	Plymouth	—	—
Newton	9	4	Southbridge	3	1
Fitchburg	8	3	Wakefield	—	—
Taunton	23	4	Webster	—	—
Everett	7	1			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MARCH 9, 1907.

L. H. SCHWERIN, acting assistant surgeon. Additional duty on board the "Florida."

R. W. PLUMMER, passed assistant surgeon. Detached from the "Denver" and ordered to the Chicago Recruiting Station.

J. STEPP, passed assistant surgeon. Detached from the "Don Juan de Austria" and ordered to the "Denver."

H. SHAW, passed assistant surgeon. Commissioned passed assistant surgeon from Oct. 28, 1906.

B. F. JENNESS, passed assistant surgeon. Commissioned passed assistant surgeon from Nov. 11, 1906.

R. HYDEN, E. V. VALZ, F. W. SMITH, assistant surgeons. Appointed assistant surgeons from March 5, 1907.

L. H. SCHWERIN, acting assistant surgeon. Detached from temporary duties on the "Florida" and ordered to resume duties at the Naval Hospital, Norfolk, Va.

APPOINTMENT.

DR. SHEPHERD IVORY FRANCZ, formerly connected with the Harvard Medical School, and later with the McLean Hospital, Boston, has been appointed professor of experimental psychology in the George Washington University. Dr. Franez has always held the position of psychologist to the government hospital for the insane.

SOCIETY NOTICE.

THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A meeting of the Society will be held in Sprague Hall, Medical Library Building, Monday, March 18, 1907, at 8.15. Program: Hydrophobia and its Prevention, Dr. C. P. Sylvester. Its Diagnosis and Prevention, Dr. Langdon Frothingham. Rabies in Massachusetts, its Prevalence and Prevention, Dr. Austin Peters.

DANIEL FISKE JONES, M.D., *Secretary.*

RECENT DEATHS.

DR. CHARLES REED, of Brooklyn, N. Y., died March 5. He was born at Ossining, N. Y., in 1856, and was graduated from the College of Physicians and Surgeons, New York, in 1879.

DR. THOMAS A. SKILLMAN, of New Brunswick, N. J., died on March 6, at the age of fifty-three years. He was graduated from the medical department of the University of the City of New York in 1878.

DR. WILLIAM BAKER CRAIN, the oldest physician of Richfield Springs, N. Y., died in Utica, on March 9. He was graduated from the medical department of the University of Pennsylvania in 1860, and had practised for over thirty years at the well-known health resort, where among his patients were many prominent persons from all over the country.

BOOKS AND PAMPHLETS RECEIVED.

Climate as a Factor in the Treatment of Tuberculosis. By Frederick I. Knight, M.D. Reprint.

Diagnosis and Treatment of Some of the Ordinary Diseases of the Rectum. By Lewis H. Adler, Jr., M.D. Reprint.

Medical Specialism, with Especial Reference to Proctology. By Lewis H. Adler, Jr., M.D.

Fourth Annual Report of the Superintendent of the Bureau of Government Laboratories for the Year ending August 31, 1905. Manila. 1906.

Fifth Annual Report of the Director of the Bureau of Science for the Year ending August 1, 1906. Manila. 1906.

Reports of the Trustees and Superintendent of the Butler Hospital. Presented to the Corporation at its Sixty-third Annual Meeting, January 23, 1907. Providence, R. I.

Quarterly Bulletin, Medical Department of Washington University. February, 1907. St. Louis, Mo.

Transactions of the American Gynecological Society. Vol. 31. For the year 1906.

Paraffin in Surgery. A Critical and Clinical Study. By William H. Luckett, B.S., M.D., and Frank I. Horn, M.D. Illustrated. New York: Surgery Publishing Co. 1907.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vols. I and II. Chicago: W. T. Keener & Co. 1906.

Makers of Modern Medicine. By James J. Walsh, M.D., Ph.D., LL.D. New York: Fordham University Press. 1907.

New York State Department of Health. Extract from the Twenty-seventh Annual Report. 1906. Albany. 1907.

State of New York. Report of the Sixth Annual Conference of Sanitary Officers. Held at Syracuse, Oct. 24-26, 1906. Albany. 1907.

A Text-Book of the Practice of Medicine. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc. Second edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1907.

Medical Diagnosis. A Manual of Clinical Methods for Practitioners and Students. By J. J. Graham Brown, M.D., F.R.C.P.E., F.R.S.E., and W. T. Ritchie, M.D., F.R.C.P.E., F.R.S.E. Fifth edition, greatly enlarged and revised to date. Illustrated. New York: Imperial Publishing Co. 1907.

Tumours, Innocent and Malignant. Their Clinical Characters and Appropriate Treatment. By J. Bland-Sutton, F.R.C.S. Fourth edition. Illustrated. Chicago: W. T. Keener & Co. 1907.

A Text-Book of Ophthalmic Operations. By Harold Grimsdale, M.B., F.R.C.S., and Elmore Brewerton, F.R.C.S. Illustrated. Chicago: W. T. Keener & Co. 1907.

The Graduation Ceremony, With an Account of Some Modern Surgical Celebrations. By W. W. Keen, M.D., LL.D. Reprint.

The Community of Interest of the Medical School and the Public. By W. W. Keen, M.D., LL.D., Hon. F.R.C.S. (Eng. & Edinb.) Reprint.

University of California Publications. Pathology. On the Synthesis of Protein through the Action of Trypsin. By Alonzo Englebert Taylor. Berkeley.

Notes on Blood-Serum Therapy, Preventive Inoculation and Toxin and Serum Diagnosis. For Veterinary Practitioners and Students. By Walter Jowett, F.R.C.V.S., D.V.H. Illustrated. Chicago: W. T. Keener & Co. 1907.

The New Hygiene. Three Lectures on the Prevention of Infectious Diseases. By Elie Metchnikoff, with Preface by E. Ray Lankester. Chicago: W. T. Keener & Co. 1906.

New York State Library. Yearbook of Legislation, 1905. Albany. 1906.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. III. Edinburgh and London: William Green & Sons. 1907.

The Treatment of Tuberculosis of the Urinary Tract in Women. By Edgar Garceau, M.D. Reprint.

Thirty-first Annual Report, New York State Reformatory at Elmira. For the Fiscal Year ending Sept. 30, 1906. Elmira. 1907.

Sacrococcygeal Tumor (Teratoma). By W. W. Keen, M.D., LL.D., and W. M. Late Coplin, M.D. Reprint.

Original Articles.

SUBDELTOID BURSITIS.

BY CHARLES F. PAINTER, M.D., BOSTON.

INFLAMMATION of the bursa beneath the deltoid muscle is quite common. It is probable that the majority of "peri-arthritie" inflammations of the shoulder are examples of this condition. The chief clinical characteristics of this affection are pain in the shoulder and upper arm, together with impairment of function at the shoulder joint. Traumatism in one form or another is the usual cause of these symptoms. The most common injury producing them is a fall upon the shoulder or a violent twist or wrench to this articulation. These constitute the direct traumatic causes of subdeltoid bursitis; next in importance are the traumatisms resulting from habitual, slight injuries connected with one's occupation; most rare of all are infections of this bursa resulting from the local action of a systemic toxin. There are occasional instances of what seem to be manifestations of osteo-arthritis in this region, with or without evidences of a similar condition elsewhere.

The cases which are herewith reported demonstrate very strikingly the influence of the two forms of injury to which reference has been made.

Codman[1] has published a very careful anatomical study of the relations of this bursa to the structures about the shoulder joint and has called attention to the fact that in some cases there is a rupture of the tendon of the supraspinatus muscle associated with injuries to this bursa. The bursa is situated immediately beneath the fibres of the deltoid muscle and directly above the fibrous capsule of the shoulder joint. In a normal condition it is very thin walled, and adapts itself accurately to the different positions of the head of the bone as it changes with motion of the humerus and scapula. It is said by Codman to be aided in this adaptability by the contracture of the muscle, the tendon of which he has found ruptured in traumatisms to this bursal sac and he attributes its liability to injury, in part, to the fact that rupture of this tendon does not permit the bursal walls to be pulled up out of harm's way when the humerus is elevated. Under normal conditions it must contain very little fluid. In size it perhaps incloses an area as large as a fifty-cent piece. The position of this sac can be well understood by looking at Fig. 1. The incision shown in this case opened into the sac at the juncture of its outer and middle thirds and quite near its inferior border.

Pathology.— The changes which take place in the walls of this sac consist of a thickening of the entire membrane in some cases, with a partial or complete obliteration of the cavity within. Some times villous enlargements have been seen in small areas of the sac so dense as to give a definite shadow in the x-ray, though there was no demonstrable deposit of lime salts associated with these villi. In one (Case IV) of the two cases in which the duration of the symptoms extended over a period of twelve to fifteen years, the sac was full of a yellowish, finely granular, cheesy material, having much the appearance of the contents of a wen. The second (Case III) case in which this condition within the sac was present was very chronic, having caused more or less trouble for ten or twelve years. Chemical analysis of the content of the bursa in Case III made by Dr. E. A. Austin of Tufts Medical School, showed the following result: "The specimen contained a small amount of albumin which was soluble in a 10% ammonium chloride solution and probably consisted of both serum albumin and serum globulin. A small amount of fat which was extracted by ether showed a very large amount of ash. This ash contained a small quantity of sulphate of potash, but over 90% of it was made up of calcium carbonate and calcium phosphate, of which the latter greatly predominated. There was a small trace of magnesia."

In all four of the operative cases to be reported the x-ray examination has shown a very definite shadow in the region where the bursa was found. In two of these (Cases III and IV) the sac was filled with cheesy material, in one of which, according to the above analysis, there was an excess of calcium carbonate and calcium phosphate, both of which substances would naturally obstruct the passage of the x-ray.

In Case I, however, there was no accumulation of cheesy material within the bursa, the walls of the sac being uniformly thickened throughout, and the cavity largely obliterated. The x-ray shadow was quite as dense as in the other two cases. In Case II there was practically no obliteration of the sac and the thickening of its walls was confined to the upper and inner and to the lower and outer corners. It was in these places that the x-ray revealed a shadow. It would appear that calcareous or cheesy change is a degeneration which may take place in the more severe injuries of the bursa in which adhesive inflammation has occurred, obliterating the cavity of the bursa and therefore destroying its function.

(*a*) CLINICAL COURSE AND (*b*) PHYSICAL SIGNS.

(*a*) In the cases brought on by direct violence the symptoms attributable to the bursal inflammation are necessarily somewhat masked at first by the immediate effects of the trauma. Occasionally, however, when the immediate effects are insignificant the true symptoms of the bursitis develop several days after the injury. This is probably always the case, though it is impossible to demonstrate it.

In the occupational cases the development of symptoms is necessarily much more insidious. Periods of comparative freedom from symptoms alternate with periods of severe pain, differing in this respect from the usual acutely traumatic

[1] E. A. Codman: On Stiff and Painful Shoulders. The Anatomy of the Subdeltoid or Subacromial Bursa and its Clinical Importance. Subdeltoid Bursitis. BOSTON MEDICAL AND SURGICAL JOURNAL, May 31, 1906, p. 613.
(For illustrations of the anatomical relations of this bursa reference is made to the above article.)

case, where the maximum of severity is attained early and fluctuations are not as common. A dull ache associated with stiffness of the shoulder are the early subjective signs in the majority of instances. Severe, knife-like pain is complained of by a considerable number of patients and its distribution is over the front of the shoulder joint, radiating down to the insertion of the deltoid and even as far as the forearm and fingers.

Restriction of the motions at the shoulder is early noted, those first affected being lateral elevation (abduction) of the arm and rotation. Forward flexion and backward flexion (extension) are preserved rather longer than the other motions, probably because the scapula will move with the humerus in those motions; it is sometimes difficult to determine just when independent humeral motion ceases. Great difficulty is experienced by these patients at night. It is almost impossible to assume a comfortable position because of the dragging back of the humerus when in the supine position or when lying upon the well side; lying upon the affected side is usually out of the question.

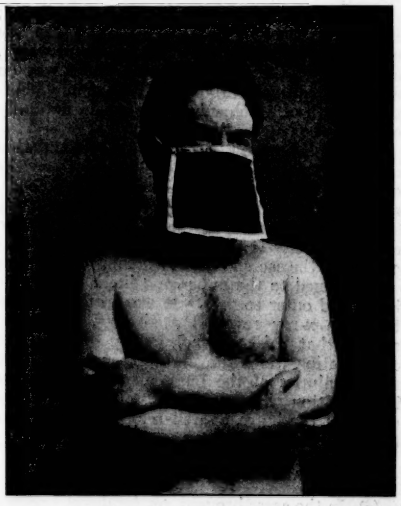


FIG. 1. Illustrates the position of the incision for the removal of the bursa and approximate location of bursa.

(*b*) The physical signs do not vary greatly. The contour of the shoulder is not conspicuously altered. In the more chronic cases there may be more or less atrophy of the muscles about the shoulder, particularly the deltoid and the supra- and infra-spinatus. Occasionally a slight swelling may be seen localized over the bursa, and in one instance there has been a slight elevation of the surface temperature over the bursal enlargement. Acute, localized tenderness to pressure is a very constant symptom and this is demonstrable over the location of the bursa at a point close to the position of the scar seen in Fig. 1.

Restriction to motion, both active and passive, is the most constant and important sign. There are exceptions, however, to this rule. Case IV, one of the patients in whom calcareous changes had taken place, could make nearly all of the motions of the arm readily, except when she had an acute exacerbation. Muscular spasm restricts all attempts at passive motion as well as prohibits active motions. Pain is aggravated by voluntary motion. Fixation of the shoulder, the erect position or support with pillows under the arm and shoulder will give some relief from pain.

Treatment.— Only the open operative treatment will be considered here. The manipulative treatment of the early or subacute cases under an anesthetic, followed by frequent passive motion and massage, accompanied, as soon as lack of sensitiveness will permit, by active stretching exercises, gives good functional results after a few weeks or months of treatment, according to the severity of the case.

The open incision and removal of the entire sac should be practised in the writer's opinion upon all cases, be they occupational or traumatic, which have lasted for six months or more. If they have caused trouble for as long a period as six months they will require, even after a thorough manipulation under ether, a very long time to regain normal motion, if indeed they ever recover completely.

Restitution of normal motion has been accomplished with much less effort and very much sooner after the dissection of the bursa than after the most satisfactory ether manipulation I have seen. Two physicians operated upon within the past year and a half (Cases I and III) have been able to return to their practices within three weeks from operation. In no instance do I recall a manipulated patient who has been able to perform his duties so soon.

The operation is very easily performed. The fibres of the deltoid muscle are separated in a direction parallel to their long axes and the bursa is found very easily beneath the sheath of the muscle if the walls are at all thickened. If this is not the case it sometimes requires a little dissection to find it. It should be thoroughly removed by scissors dissection and the fibres of the deltoid loosely drawn together with two or three catgut sutures and the sheath of the muscles closed over it before suturing the skin. Care should be taken not to get the incision too far out on the point of the shoulder, and it should be made in women so that the shoulder straps of a low-necked gown can be made to cover the scar. It is better to close the skin with a buried silkworm gut, but if the incision is too far out where the contour of the shoulder becomes dome shaped the skin is inclined to gape open, even though the suture be ever so nicely applied.

A Velpeau or a double sling applied over the sterile dressing gives good fixation and is comfortable. The suture is removed after a week or ten days and passive motion is immediately

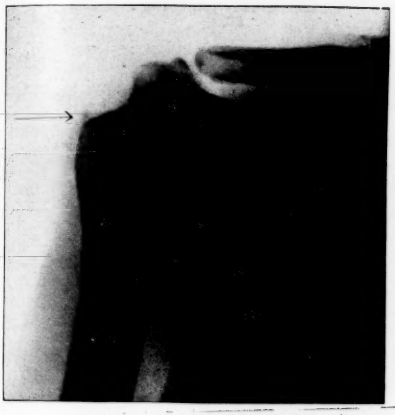


FIG. 2. Arrow indicates location of thickened bursa.



FIG. 5. Arrow indicates situation of thickened sac.

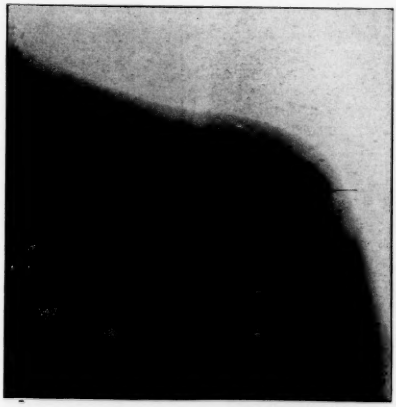


FIG. 6. Arrow indicates location of bursa.

commenced. Hot fomentations to the shoulder favor the limbering-up process and my experience has been that passive motion is restored to normal in from three weeks to two months, whereas active motion is a little more tardily secured. Pain, except that which is associated with the limbering-up process, is almost immediately relieved.

Prognosis in this class of cases the writer is led to believe from his experience with both the manipulative and open methods of treatment is better through the open method than through simple manipulation. The shoulder joint is not opened; ether has to be given in either case, and the risk of the incision is only the risk of superficial sepsis. The operation is not a long one if the bursa is dissected out, so that any subject to whom it is proper to administer an anesthetic is in all probability a proper one upon whom to perform the open operation.

Convalescence is much shorter after the open method and the functional results are believed to be considerably better. The writer is of the opinion that there is no advantage in putting the arm and shoulder up in a plaster spica in a strongly abducted position.

The following four cases are reported in detail:

CASE I. G. P., physician, age, forty-five.

On Aug. 28, 1906, patient was examined because of a painful right shoulder which had been troubling him for about a year.

He is engaged in an active general practice, and finds that the discomfort is so great and the interference with the function of his right arm is so decided that he is seriously inconvenienced in the practice of his profession. Apart from a susceptibility to "grippe" and rather frequent attacks of naso-pharyngeal catarrh, he has had no infections related to the present trouble. He has never had rheumatism, and he himself attributes the present symptoms to the jar of driving a Knox automobile. The pain commenced in the shoulder and extended down to the insertion of the deltoid muscle, and occasionally as far as the hand. It has been a considerable annoyance to him at night because of difficulty in assuming a comfortable position. It has been hard for him — in fact, impossible a good deal of the time — to put on a heavy overcoat unassisted. There have been periods of relative immunity from pain during this past year, but there has constantly been some restriction in motion.

At the present time, motion of the humerus independent of movement of the scapula is absolutely prohibited in every direction. There is moderate atrophy of the deltoid and trapezius muscles and also of the supra- and infra-spinati. Over the point of the shoulder is an area about the size of a twenty-five-cent piece which is exquisitely tender. There is no increase in the surface temperature. The x-ray shows a definite shadow, as is seen in Fig. II.

Sept. 8, 1906. Under ether an incision 5 cm. long was made directly over the apex of the right shoulder. (*Vide* Fig. 1.) The fibers of the deltoid were separated, the capsule exposed and between the inferior surface of the muscle and the capsule of the joint was a bursal sac which was uniformly thickened throughout its entire extent and was about three times as dense as it should be. There was evidence of an adhesive inflammation within the sac practically obliterating two thirds of the entire cavity. There was no excess of fluid and no villous thickening of that portion of the bursal sac which was not adherent. The entire bursa was dissected out; the muscles were drawn together with interrupted catgut sutures; the skin was closed with a buried silkworm gut and the arm was restrained in a Velpeau. Previous to the application of the dressing, the humerus was moved throughout the entire arc of motion of which it was capable, in order to break up any possible adhesions. The patient was discharged from the hospital at the end of three days; the stitch was removed at the end of a week, and passive manipulation of the arm very soon restored its function. The patient was engaged in his practice again within two weeks from the time of the operation and the photographs, Figs. 3 and 4, show the possible motion of the joint at this date, Dec. 31, 1906.

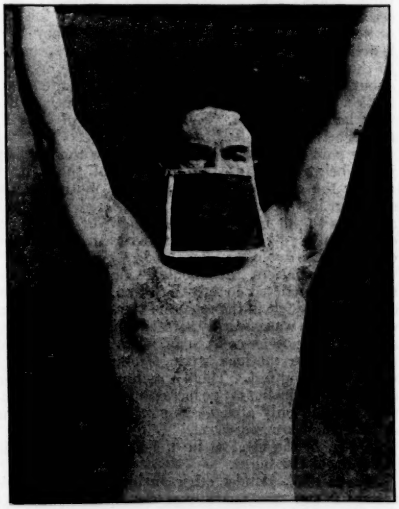


FIG. 3. Shows voluntary lateral flexion of the arms after operation.

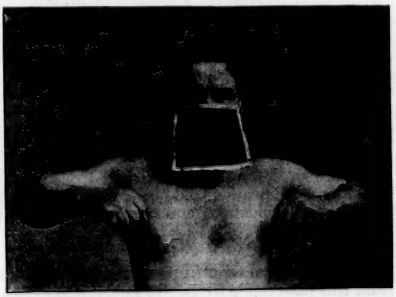


FIG. 4. Shows voluntary powers of lateral flexion and internal rotation of the humerus after operation.

Dec. 31, 1906. The patient reports that function has been entirely restored and that there is practically no discomfort attending any motion he desires to make.

Owing to a delay in getting the tissue removed from this case to the pathologist, it was not in a proper state of preservation for histological study.

CASE II. Mrs. B. L. S., age, thirty years.

On Dec. 24, 1906, the patient was examined with reference to her left shoulder.

Three years ago, up to which time she had never had any injury to the shoulder and no trouble of any sort connected with it, the arm was severely wrenched, causing considerable pain at the time. This happened late in the afternoon. That night she was awakened after an hour or so of sleep by a severe pain in her shoulder. She discovered that the arm and shoulder were swollen and the pain was extremely acute. It lasted for approximately two weeks, gradually disappearing to return at varying intervals during the past three years. The recurrences have generally been associated with some excess in the use of the arm or some unexpected or unusual motion. They have lasted from a few days to two or three weeks, according to the severity of the injury. The last one occurred about ten days before I saw her, and the acute symptoms which had been connected with this injury had very largely subsided. She is the sister of Case IV in this series.

The pain radiated down the arm from the shoulder joint, being worse at the insertion of the deltoid. During the exacerbations of pain the motion of the shoulder has been materially interfered with and attempts to put the humerus through the normal arc of motion have been associated with an aggravation of the pain.

On examination, the shoulder motions were not markedly restricted in any direction, but a distinct click could be felt in the region of the subdeltoid bursa when the arm was inwardly rotated, and also occasionally, though not as constantly, when it was forward flexed. These motions were accompanied by considerable discomfort. There was no local swelling in the region of the bursa; no increase in the surface temperature and only a slight amount of atrophy of the shoulder and arm muscles.

In Fig. 5, the shadow in the x-ray indicates the situation of the bursa.

Jan. 1, 1907. Under ether an incision of approximately 5 cm. was made over the apex of the left shoulder, which exposed the bursal sac at a point about half way from the apex of the shoulder to the inner border of the bursal wall. In the extreme outer and anterior portion of this sac was some villous thickening of the capsule, and a similar thickening was noticed in the inner posterior portion. Between these two points the bursal wall was of about normal thickness, and there was a slight excess of fluid present. This was thin and watery, but bore no indication of being inflammatory. There was no calcification of the thickenings above noted. The entire bursa was dissected out, the wound being treated, and the arm restrained as in Case I.

Jan. 8, 1907. The stitch was removed; wound had healed by first intention, and about two-thirds of the normal arc of voluntary motion was possible in the shoulder joint.

The histological report upon the tissue removed from this case made by Dr. T. Leary of the Tufts Medical School is as follows:

Microscopic examination shows tissue to consist of bursa surrounded by striped muscle, fat and dense fibrous tissue.

Bursa is lined by a layer of epithelioid connective tissue which varies greatly in thickness and is thrown into papillary folds. In places this tissue encloses aggregations of lime salts in the form of granules which vary in diameter from 10 to 15 microns. In part these granules are surrounded by collections of giant cells, in part they lie directly in contact with the mononuclear cells of the epithelioid layer.

There is an occasional lymphoid cell in the epithelioid tissue and rare polynuclears.

CASE III. Dr. W. P. D., age, thirty-seven.

This patient was seen on May 15, 1905, complaining of pain and loss of motion in the right shoulder and arm. At intervals during the past ten years he has suffered considerably from this. He had been a good baseball player, his particular position being that of pitcher. The summer previous to the commencement of his present symptoms he had pitched a great many games consecutively, and gradually, following this unusual effort, the right shoulder became lame and more or less stiff. This condition was so pronounced that at various times he has had marked disability in consequence of the stiffness. Only occasionally has the pain been so severe as to interfere with the use of his arm or the performance of his ordinary duties. In the two weeks previous to the time at which I saw him he had had his most acute attack. It was impossible for him to sleep in a recumbent position and he had sat up in a Morris chair for several nights. He could not get his arm into the sleeves of his clothing and had been completely incapacitated from his work. He has no rheumatic history and no infection of any sort which could have been responsible for these attacks.

On examination, there was no evidence of arthritis in any other articulation. The right shoulder was held stiffly at the side and no motion was permitted in any direction. In forward flexion a few degrees of motion were permitted, but this was due to the movement of the scapula. Abduction of the arm was particularly painful. There was marked tenderness to pressure over the deltoid bursa and considerable atrophy of the muscles of the arm and shoulder. Fig. 6 shows a pronounced shadow in the x-ray in the situation of the subdeltoid bursa.

Operation was advised, and on the 17th of May, 1905, an incision was made 7 cm. in length over the top of the right shoulder. The fibres of the deltoid muscle were separated and the bursa was exposed in about its posterior third. The portion of the bursa which was anterior to this plane was adherent and only slightly thickened. The portion which was not obliterated contained a considerable quantity of cheesy material, having very much the appearance of the contents of a wen. The walls of this portion of the bursa were considerably thicker than the part which was anterior to this and which had been obliterated. The sac was dissected out thoroughly and the skin closed with interrupted silkworm gut sutures.

On the 24th of May the stitches were removed. The patient had then about one third of the normal motion of the shoulder in every direction. Active and passive motions were kept up at home for the next few weeks, and considerable improvement took place.

The patient has not been seen from that time to this, but under date of July 27, 1905, he wrote me as follows in answer to a letter: "Have been so relieved by the operation that I have put off coming to see you. I have no discomfort now; sleep on my back and never think of my shoulder."

Under date of Jan. 1, 1907, the patient wrote in answer to another letter, "I can raise my arm, that is, the operated one, in a horizontal plane as high as I can

the unaffected one. I can raise it directly forward from me to the same degree that I can the well one. I can rotate it, both outwardly and inwardly, to the degree that I can the unoperated one. I can lie comfortably on that side at night, and I do not find any motions which I naturally desire to make which I cannot make on account of either pain or restriction in motion in the shoulder."

The chemical examination of the contents of this sac has been referred to under the paragraph on pathology. The histological examination of the specimen showed evidence of chronic inflammatory changes only.

Case IV. Mrs. D. H. S., age, forty-one.

This patient was examined for the first time Oct. 13, 1906. She was complaining of pain in the right shoulder. During the past six years she has suffered more or less constantly from pain localized in the shoulder and radiating down the arm as far as the fingers, but more constantly referred to the insertjon of the deltoid, and invariably aggravated by use. Her occupation is that of a cutter. She stands at a table holding in her right hand a heavy pair of shears and cutting material which she holds in her left hand, making a series of simple motions which are constantly repeated. The motion which she thus so habitually makes is one of outward rotation of the arm, combined with forward flexion of it. Up to very recently a little rest has been sufficient to relieve the discomfort which constant use has frequently brought on. Of late, however, the pain has become intolerable, and rest has afforded her no relief. She has lost a great deal of sleep and this has told upon her constitution. For the two weeks previous to examination she had been unable to do her work at all.

On examination, the motion of the shoulder, both active and passive, were quite free, but were accompanied by a great deal of discomfort, particularly on making the motions to which I have just referred. There was a slight degree of atrophy of the deltoid. In the region of the bursa was a distinct prominence about the size of a nickel. This was palpable as well as visible. On palpation there was a marked induration extending from this central elevated portion to a considerable extent on all sides. This was very tender to pressure and there seemed to be a slight increase in the surface temperature. Counter irritation with ichthyol and fixation together with prolonged cessation from her habitual occupation was advised and was tried for a short time, but the patient soon consented to surgical interference.

On Oct. 20, 1906, an incision about 5 cm. long was made over the point of the right shoulder in a manner similar to that which has already been described. The anterior portion of the bursa seemed to present no pathological change. In about the middle of the sac, however, an adhesive inflammation had taken place and the portion which was posterior to a point where this inflammation was first noted contained a cheesy material of an exactly similar appearance to that noted in Case III. This seemed to be made up of calcareous granules, some of which were embedded in the lining membrane of the sac. This was thoroughly dissected out and curetted, and the entire cavity sopped with tincture of iodine. The muscles and skin were closed and the dressing was applied as in the previous cases. The stitch was removed on the fifth day after the operation and passive motions were found to be possible through an arc of about one third of the normal.

On Nov. 19, motions of the arm were fully restored and there was no pain attending manipulation of the joint.

Dec. 24, 1906. Patient has been at work at her previous occupation for nearly a month, suffers no discomfort, and has absolutely free use of the arm in every direction.

The histological examination of the tissue removed from this case shows only a slight amount of chronic inflammation. There was no bony material in the wall of the sac and the contents bore a close resemblance to the cheesy material obtained from Case III, which was subjected to analysis by Dr. Austin. It had every appearance of being composed of the same crystalline substance, though it was not submitted for chemical examination.

No x-ray of this patient's shoulder was taken.

REMARKS ON THE SURGERY OF THE RIGHT UPPER ABDOMINAL QUADRANT.*

BY F. B. LUND, M.D., BOSTON.

The right upper abdominal quadrant has displaced the right lower abdominal quadrant from the position of the area of greatest surgical importance. The appendix and the right ovary, which both afford a fruitful field for surgical work, hardly extend to the surgeon such varied opportunities for differential diagnosis, or offer operative procedures of so great variety and interest as the organs situated in the right upper abdominal quadrant, namely, the gall bladder and its ducts, the pylorus and first part of the duodenum, the head of the pancreas and the right kidney. The surgeon called to attend attacks of pain in the right upper quadrant has to differentiate between pain due to stones in the gall bladder, to stones in the common duct, cholecystitis, stricture of the pylorus, painful ulcer of the pylorus or duodenum, perforation partial or complete of ulcers of the duodenum or pylorus and acute or chronic pancreatitis, etc. Complex surely are the problems, and fitted to tax our diagnostic skill to the utmost and often we must confess to defeat. Who can distinguish in every case between the pain of gallstones and ulcer of the duodenum and pancreatitis so accurately as to prove himself right every time by the test of exploratory laparotomy? If such a surgeon there be I have yet failed to meet him. Mayo puts the matter graphically as follows:

"In the upper abdomen we have attempted to study the stomach independent of the associated organs, the liver and bile passages, the duodenum and pancreas. The result has been a confusion in diagnosis and treatment. The palm of a hand may cover a serious lesion of any one of these organs and that, too, at the point of greatest liability; not only so, but any one of this group may start a pathologic process which may extend to any one of the others and with fully as great frequency as occurs under similar conditions in either the generative or urinary systems."

Graham,[1] in an extremely important paper based on 46 cases of duodenal ulcer operated upon by the Mayo brothers, conscientiously attempts the differential diagnosis between

* Read before the Obstetrical Society, Boston, Jan. 22, 1907.

[1] St. Paul Med. Jour., Sept., 1904.

cholelithiasis and duodenal ulcer. "Pain in cholelithiasis," he states, "is sudden, severe, has a wide field of radiation, comes absolutely irregularly, is independent of and not eased by food and is not often traced to it. No stomach history is given between the short precise spells. Spasm of the diaphragm is nearly always observed and vomiting and gas are present only during the attacks, and relief through vomiting and gas eructation is not as certain. In duodenal ulcer the pain comes in decided periods of attack, may be and often is sudden, has a very limited field of radiation, may be irregular as to time of separate attacks, but regular as to periods. It is quite dependent upon food, being early eased, but later pain and distress appear. The history of gas, vomiting and acidity runs parallel to the periods of pain. No spasm of the diaphragm occurs except in some cases of perforation. The vomiting and belching are usually decided in quantity and followed by relief."

In distinguishing between the duodenal and purely pyloric ulcer, he calls attention to the fact that the pain, gas, acidity and vomiting are more intense in the pyloric than in the duodenal form and that in the latter the type of pain is more apt to approach that of gallstones.

Stone in the common duct or decided infection of the gall bladder has a definite period of attack, but jaundice, enlarged gall bladder, chills and fever may here be present to assist in diagnosis.

Who of us is not familiar, however, with cases in which we have made a diagnosis of gallstone disease, on a basis of irregular attacks of pain in the right hypochondrium, with localized spasm and tenderness, the pain radiating over the abdomen and perhaps into the right shoulder, only to find on operation an ulcer of the pylorus, requiring a gastro-enterostomy for its relief? We have also operated for relief of a dilated stomach, with constant vomiting and emaciation, expecting to find a cancer or chronic ulcer of the pylorus, and found a gall bladder full of pus with a stone impacted in the cystic duct, obstructing the pylorus by involving it in a mass of adhesions and requiring gastro-enterostomy as well as a cholecystectomy.

In the presence of pain due really to a duodenal ulcer, the downward projection of an enlarged right lobe of the liver has simulated an enlarged gall bladder, so as to mislead us into an erroneous diagnosis of gallstones.

I may remark in passing that it has been a not uncommon mistake with myself and my colleagues to cut down upon a gall bladder believing it, on the evidence of palpation and percussion, to be enormously enlarged, and find out that the supposed dilated gall bladder was an enlarged right lobe of the liver, hiding under its edge a gall bladder filled with stones and surrounded by fresh inflammatory adhesions.

The gall bladder varies in its relation to the median line, also. In males with a high lying liver it lies not only well up under the ribs but further from the median line of the body. The reason for this is that the liver lies in its normal position in the thoracic cavity, in the hollow of the ribs.

In women where the liver has been pushed down by lacing the waist, as it descends it is pushed inward by the inward projecting edge of the thorax, so that the gall bladder is pushed with the liver nearer to the median line, the location of pain and tenderness approach more nearly the pylorus and the head of the pancreas; and here is introduced another element in the diagnosis, that of pancreatitis. In the typical cases of chronic or recurrent sub-acute pancreatitis we have usually antecedent history of gallstone attacks, so that the history here is consistent with either gallstones, pancreatitis or both.

The pylorus also varies very much in position, the variations being sometimes the result of adhesions, sometimes apparently congenital. In a recent operation for cancer of the pylorus the writer operated by a median incision, but found the pylorus far up behind the liver and to the right, so as to be accessible with difficulty. In the next case, a right rectus incision was made, but the pylorus was found adherent to the liver exactly in the median line. In both cases extension of the incision was necessary. While the right rectus is usually the best, it may be of advantage to predetermine the position of the pylorus by inflation of the stomach.

In pancreatitis the tumor is nearer the epigastrium, and in its typical manifestation the tumor and area of tenderness is a little lower than in pyloric ulcer, and nearer the median line than in cholecystitis. The attacks of pancreatitis are attended with more shock and constitutional disturbance than cholecystitis; and in cases preceded by a history of gallstone attacks extending over months or years and presenting in the attack under treatment a marked element of constitutional depression, with moderately high temperature and slight jaundice, the tender area corresponding to the head of the pancreas, and especially if a tumor corresponding in outline to the head of the pancreas can be felt, we must be on the lookout for sub-acute or chronic pancreatitis. Fortunately the chief *desideratum* in the treatment of these conditions is the drainage of the gall bladder, so that through the exploratory incision we are in a position for the therapeusis of either affection. The writer has within a year dealt successfully with two cases of chronic pancreatitis and one of acute, by an incision through the upper part of the right rectus for the relief of attacks supposed to be due to gallstones. In two of the cases the location of the tenderness and resistance led to pancreatitis being suspected before operation, though an absolute diagnosis was not made till the abdomen was opened. In the acute cases, especially of the right hypochondriac or epigastric peritonitis, the diagnosis between perforating ulcer, pancreatitis, and acute cholecystitis, in my belief, is not always in the power of any man to make. These cases, however, urgently call for immediate exploration and through the right rectus incision

the diagnosis can be cleared up and the appropriate operative procedure carried out.

In the vast majority of acute stomach perforations, as is well known, the perforation is on the anterior surface and early diffusion of fluids takes place downward and to the left along the front of the great omentum. In these cases the mortality is in proportion to the promptness with which the surgeon acts, as many as 80% of the cases operated upon within twelve hours getting well.

The same is true of acute perforations of the gall bladder except that in the writer's experience these have been even more serious than those of the stomach. The mortality in acute pancreatitis, which Mayo well classes with the acute perforations, is as yet in doubt, but early operation with peritoneal drainage will undoubtedly bring about a more satisfactory state of things in this regard.

Operation upon an acute pancreatitis in a woman of sixty, consisting of drainage of the gall bladder with incidentally the removal of two stones and scoring the anterior surface of the pancreas and stopping the bleeding with gauze packing, the operation done twenty-four hours after the attack has resulted in the gratifying and complete recovery of the patient.

In two cases, both males, the writer has recently operated upon a diagnosis of cholecystitis, made by careful clinical observers, finding in one an ulcer of the pylorus which had perforated but had been walled off by adhesion to the under surface of the liver and in another an ulcer of the first portion of the duodenum. A gastro-enterostomy gave complete relief in both cases.

Duodenal ulcer is even more apt than gastric ulcer to be mistaken for cholecystitis, especially when threatened perforation sets up a local peritonitis, as the descending portion of the duodenum is directly in relation with the common duct and almost directly below the neck of the gall bladder.

In duodenal perforations it is an interesting fact, several times demonstrated in the writer's experience, that occasionally the greatest tenderness instead of being over the source or focus of the peritonitis, is situated at the edge or border of the process, where the advancing pus is limited by fresh fibrous adhesions. The peritonitis is hot at the edges and cold in the middle, so to speak.

In a case of recent peritonitis with general splitting of the abdomen, the writer made an incision over the appendix because here was the only tender point. The appendix was normal, but pus had run down between the colon and the abdominal wall from a perforation of the duodenum, which was found after carrying the incision upwards. It was sutured and drained and the patient recovered.

In alluding to the cases mentioned in this paper, which are selected from among a large number as the ones in which a wrong diagnosis was made, the writer does not wish to give the impression that it is not worth while to exhaust all possible means to make a correct diagnosis before operating, for the reason that operation is so apt to reveal the fact that the diagnosis has been wrong. Careful weighing of the history, together with thorough physical examination, will enable one to arrive at a correct diagnosis in a majority of the cases, but there will remain a considerable number in which exploratory laparotomy alone will reveal the true condition.

We have spoken of the upper abdomen as the borderland of surgery; it is also the borderland of medicine, for in what other therapeusis than the surgical can we hope for relief of these conditions? At the autopsy we can get a picture of the conditions at the fatal close, whose secondary conditions have masked the beginnings and the course of the disease.

The surgeon, by early operations in cases of gallstones and gastric ulcer, has given us our present knowledge of the pathology of these diseases in their early and curable stage and also afforded to us in many cases our only method of rational therapeusis.

These facts have an importance also to the practitioner of medicine. If he wishes to acquire skill in the diagnosis of the intra-abdominal conditions which he is so often called upon to treat, he must attend not the post-mortem room, but the operating table of the surgeon. There he may find his diagnosis checked, confirmed or disproved, and can see the pathology of the conditions in the living at a time when they are often susceptible of relief. It is my belief that the clinic has displaced the autopsy table as the place for acquiring the pathological knowledge upon which skillful diagnosis may be based. The practitioner who sends his cases to the surgeon and then does not personally attend the operation and see the pathological condition misses his greatest opportunity for acquiring skill in diagnosis. He has followed the symptoms of his patient over a length of time and with a closeness of observation impossible to the surgeon or to anyone else than the medical attendant. If then he attends the operation and sees the actual pathological conditions, he is in even better position than the surgeon to profit by the combination of clinical observation and that of the operating table. Only by the cooperation of the surgeon and the clinician can either attain any special degree of diagnostic skill.

The fact that the diagnosis is in doubt should make no difference to the patient. He comes to the physician not for an exact diagnosis, but to be relieved of his pain and disability. In many cases we cannot say to him, "You have gallstones or you have duodenal ulcer, but you have a lesion in the upper right abdominal quadrant requiring operation for its relief." If we are prepared to deal with whatever lesion we may find of these organs we can benefit our patient, and unless we are so prepared we shall meet with many failures. The most important practical deduction to be made is that no operator should attack these cases of supposed cholecystitis

unless he is prepared to execute a change of front and perform a gastro-enterostomy or other suitable operative procedure in case he finds himself called upon to relieve an ulcer of the duodenum or pylorus.

The question may be legitimately asked, Is the early surgery of these conditions safe and attended by satisfactory results? The answer is that in the early cases and these alone is the surgery of this region eminently safe and satisfactory. The mortality of gall bladder operations, uncomplicated by stones in the common duct or cholecystitis, is less than 1% in competent hands. Gastro-enterostomy for pyloric stenosis gives a mortality of less than 5% and a high percentage of permanent cures. It is only in the late and neglected cases of surgical disease of the upper quadrant that the mortality is high, and here it is understood that the operation is one of last resort.

The speaker is aware that this excursion into the surgical borderland of the upper abdomen has been brief and unsatisfactory. He will be satisfied, however, if his hearers carry away the following points:

1. The advantages of early operation in diseases of the stomach, gall bladder and pancreas.
2. The imperativeness of early operation in perforations.
3. The recognition that present diagnostic measures are inadequate and consequent readiness to meet conditions different from those suspected before operation.
4. An interest in the great and growing field of the surgery of the stomach and pancreas.

PRACTICAL CONSIDERATIONS IN THE TREATMENT OF NEURASTHENIA.*

BY W. C. CANFIELD, M.D., BRISTOL, R.I.

To say that a person has neurasthenia is not stating the case much more definitely than to say that a person is *sick*, and the diagnosis of neurasthenia is often made as carelessly as that of *malaria* years ago.

There is a need among the profession for a more exact definition of the term. Few diseases have so wide a range of gradations from slightly impaired health to profound sickness, and as it borrows its symptoms from so many widely different diseases, both mental and physical, it is not strange to find many physicians go "cross lots" to their diagnosis, calling it neurasthenia without attempting to define it closely, as to its cause, or even the predominance of its symptoms, — a sort of blanket diagnosis covering complications and concurrent troubles alike.

A clear understanding of the causes that have brought about the neurasthenic state and of the channels through which they have been operative must be had before the physician can outline his plan of treatment. In no disease is it so necessary to analyze, not so much the symptoms of the case, as the personality or mentality of the patient himself in order to drive back through these same channels the causes of the disease and block them against a second entrance.

While the causes might be classed in one group as psychic, their mode of attack with each individual varies. The avenues of approach are tortuous and often obscure, and the somatic manifestations are confined only by the entire epidermis of the patient. One cannot intelligently follow a routine of diagnosing simply "neurasthenia" to be cured by a more or less routine Weir Mitchell treatment, for that is grasping the letter and not the spirit of the case. That great pioneer in the treatment of neurasthenia, S. Weir Mitchell, started the ball rolling, but it has rolled a long way since he first promulgated his "rest cure." His plan of treatment was adequate and admirably adapted to meet the indications as they were then generally understood; namely, that neurasthenia is a diseased state in which the *physical* forces have been exhausted, the mental forces suffering equally, or perhaps not at all.

Neurasthenia is essentially a disease of the mind, a psychosis, and there may or may not be organic disease as an accompaniment or complication, but always there is some impairment of the physical as well as the mental functions. "Nervous exhaustion" as a synonym is a misnomer, as there is never literally exhaustion, and the crude idea of a large percentage of the laity is that it is a disease of the nerves themselves.

That neurasthenia is primarily psychasthenia, that it has its origin in the mind and that the body suffers secondarily as a result of the widespread influence of the mind upon the body is the trend of the most advanced observation. Over twenty years ago, when I first began to study this disease our nosological printing press (which works over hours these days) had not turned out such terms as psychosis, psychiatry, psycho-neuroses, and as I could not satisfy myself that these numerous physical symptoms of neurasthenia constituted a disease, *sui generis*, I often spoke of them as a "condition," feeling convinced that they were caused by more than a mechanical drain upon the physical vitality, that another and greater source of mischief was operative, but that the mind was so active in causation I did not appreciate. Even then it was recognized that another factor than overwork was necessary to bring about nervous prostration, and that factor was called "worry," as it is still called. The full significance of worry, however, was not then appreciated, but had we followed up its pointing more quickly we would have reasoned that worry is a function of the mind, a function that may exist temporarily in a healthy mind, is almost constant in an unhealthy mind, soon becomes chronic, and if long continued is sure to develop pathological effects in the body; that worry was a mental process and therefore the mind was the starting point of this disease. With this idea as a guide, careful analysis of each and sometimes of all the symptoms, in any case of neurasthenia, would have led

* Read before the Newport, R. I., Medical Society, Dec. 19, 1906.

us then by converging lines to the same point, the psychic origin of the disease. Now it seems to me that many investigators have great difficulty in comprehending or admitting evidence that goes to show that there may exist a diseased mind without any pathological changes in the body. "A healthy mind in a healthy body" is an old adage; and a healthy mind may exist, for a time at least, in an unhealthy body, as also an unhealthy mind in a healthy body. The pathologist is always searching, and rightly so, with his knife and his stains and microscope for the anatomical lesions of a disease that is primarily mental; but will he eventually find them? I doubt it; and I find no difficulty in limiting a disease to the mind itself without pathological lesions in the body to account for the origin of the disease. The mind alone can undoubtedly by its continued action so disturb the somatic functions as to produce pathological lesions, as we so often see in the anemia following nervous dyspepsia. If one takes the materialistic view of the origin of life and mind he must always seek in the body evidence of the origin of disease, but not so if he conceives the mind as an immaterial entity fettered to the body under earthly conditions.

I have called your attention thus briefly, perhaps too briefly, to the psychic etiology of neurasthenia because a recognition of this points out the practical and only thorough method of treatment, the only method by which the last "germ" can be followed up and exterminated, the only method by which we can prevent a relapse, that is, by psychotherapeutics. It is true that we may direct our treatment to the body without apparently taking the patient's mind into account, and think that we have effected the cure solely by the rest, the overfeeding, the isolation, the graduated exercises, the tonics, etc., and brought about improvement that we call a cure. If we carefully study the workings of our patient's mind we will see that these are largely the "outward and visible signs" of the moral and mental influences we have brought to bear upon him, of the confidence in his recovery we have inspired in him, of the "suggestion" we have unconsciously employed, or at least of the auto-suggestion he has derived from these measures. Although the patient may be restored to his normal physical health, although he may have lost all his nervous symptoms, his excessive emotivity, regained his mental concentration, his memory, his interest in life and work, is he really cured? He is really in the position of the patient whose appendix has been removed, the peritoneal cavity washed out with antiseptics, and the wound closed, but a bit of necrotic tissue left inside with no drainage. He has not been taught that his regained powers are his only so long as he keeps his mind, the source of the disease, truly oriented, only so long as he recognizes the true values and proportions of causes and effects, of effort and consequent fatigue, of injury and resultant sensation.

Now, as it is the mind that causes neurasthenia, or, at least you will admit, is the greatest etiological factor, therefore the treatment must be directed chiefly to the mind, or, to bring our technology up-to-date, we must employ psychotherapeutics. In some cases we may be able to employ this alone if we are sufficiently experienced and have the essential personal qualifications for such work, but more often our own makeup or previous prejudices, or those of our patient, will make it advisable for us to employ in addition the old physical measures. In psychotherapeutics the first step is to obtain not only the patient's heredity, but his history from his cradle up to the present; not only an outline of health, but we must inquire into all the events and influences of his life that have directly or remotely exerted a moral or mental effect upon him, his ambitions or aims in life and their fulfillment or disappointment, his love affairs, his mistakes and indiscretions, his tastes, talents, weaknesses and defects, his methods of reasoning, and in fact his view of his own life and of life in general. Contrast this with the subjective history of a case of pneumonia. This cannot all be done in one examination, and it may require many conversations with him to gain his full confidence and to induce him to lay bare his whole mind.

It is very necessary, however, to quickly arrive at an approximate estimate of the requirements so that we can outline to ourselves the line of action and begin the treatment without delay. Whatever our view as to what part of the treatment is the more important, whether psychotherapeutics or physical therapeutics, or whether we diagnose cerebrasthenia or amyosthenia, we will always find numerous physical symptoms in the patient clamoring for our immediate attention. When emaciation, weak heart action, fatigue, anorexia and dyspepsia are pronounced the indication is clear for rest, overfeeding and massage and the patient expects them. When insomnia, exaggerated emotion, various phobias, general nervousness and abulia are the prominent symptoms in a fairly strong and well-nourished body the indications for rest, overfeeding and massage are not so clear, but still the patient generally expects them. A plump figure and a rosy complexion may often cover a physical impairment, and the abnormal fatigability, although chiefly of psychic origin, indicates also a lack of physical endurance. Hence it seems always wiser to begin at once with physical therapeutics, however much we may be convinced that we could accomplish the same results in the same time, or sooner, by the employment of psychotherapeutics alone. It takes time to explain to most patients what psychotherapeutics means; time to gain their confidence, and draw from them all the information that is necessary for a full comprehension of their psychic state, and if we begin at once to talk on the line of psychotherapeutics we are apt to be met by a reply, "Oh, you are a Christian Scientist, or a mind healer." True, we are mind healers, and why not as well as body healers? We are mind healers to as great an extent where we employ drugs, but we differ from the devotees of those cults in that

we also recognize diseases in which the mind plays little or no part.

It is hardly necessary for me at this time to go into a detailed enumeration of all the different measures that may be usefully employed in the physical treatment, as a thesis might be written on each one of them alone, but isolation, rest, overfeeding and exercise in some form are the main features.

Isolation requires careful consideration and involves a scrutiny of the patient's environment, the household arrangements, the *personnel* of the family, and their mental and moral influence upon the patient, and the physician's judgment and tact are often taxed to separate the patient from the annoyances of the household life, from the retarding effects of sentimental sympathy, from the depressing atmosphere and over-anxious solicitude, and the numerous associations and suggestions of worry.

Rest may be made either complete in bed, or partial, the latter more often, because a certain amount of exercise is needed to keep the somatic functions in good working order, and also because exercise for hands and feet means mental occupation, and healthy mental occupation is essential to break up the habit of unhealthy thinking. I so often hear from patients, "I have plenty of will power, but my mind is so active I cannot help thinking." As a matter of fact, there is great abulia and the mind is not in the least more active than the average. My reply is along these lines: "If you are using your will power, it is in the wrong direction; it is acting only to keep your mind upon your indigestion, your fatigue, your heart action and your worries. In this direction you give it no rest. It is not more active than that of the healthy person, it needs no more rest than his, but your mistake is that you keep it active on this one unhealthy subject. You cannot stop thinking during your waking hours, and you do not need to, but you do need all your will power to give a new and healthy direction to your thoughts. It is not fighting for your health to force or allow your mind to dwell constantly upon your health or your worries; that is playing into the hands of disease. Bring into action all your will power, not to stop thinking, for nobody can stop that, but to cast out all thoughts of health or disease and fill your mind so full of pleasant thoughts that there is no room for worrying thoughts. Be altruistic, not egotistic and introspective. Think of friends, of the pleasant events in your life or in the life of others; force yourself to read and think of the current events in the world in which you are taking no active part, and a healing interest will grow up in your mind. Let your mental housecleaning be thorough, and then you will be fighting to some purpose. Then your health will take better care of itself than you can take care of it; your heart will regulate its own beating better than you can do by any effort of will power, and your stomach will attend to its work far better than if it is embarrassed by such close watching."

Overfeeding is useful if not essential in all cases, for it replenishes the losses of physical strength and restores the endurance at the same time that rest is cutting off the expenditure of energy. The diet should be of the more easily digested and concentrated kind so that the most nourishment may be obtained with the least effort, milk and eggs being the basis, with beef, mutton chops, to relieve the monotony, and toast, rice, or crackers to supply the starchy elements. If the patient is much given to consideration and inspection of his diet (and such a habit is not easily or quickly relinquished), it is wiser to prescribe a more generous and varied diet, excluding only those articles of food and their preparation as are obviously indigestible. A diet restricted to concentrated foods leads us to a consideration of constipation, this bugbear of neurasthenics, hypochondriacs, and even of persons whom we would hesitate to class as either. One would almost be led to believe, after reading Bouchard's treatise on "Auto-intoxication," that all disease has its origin directly or indirectly from toxins generated in the body and failing of elimination, and hence that constipation is a dangerous menace to health. Yet constipation of itself never seems to shorten life, and how often we observe it throughout the life of a person who on the whole has always enjoyed fair health. If the diet is concentrated there is of necessity little waste matter to be excreted, and a daily evacuation is not called for, or better, a daily evacuation of only a small quantity is all that can be reasonably expected. Large eaters of a varied diet are seldom constipated unless they become so through neglect of maintaining a regular habit, which in itself is often the sole cause of constipation. On the other hand chronic constipation can be cured by the regular daily habit of going to stool at a fixed time when laxatives or diet have failed utterly. We should therefore emphatically impress upon the patient the necessity of going to stool regularly whether he "feels like it" or not, of giving plenty of time to a movement, of withholding altogether, or at least being very chary in the use of laxatives or enemas, and of not being discouraged if from the start he does not meet with unqualified success.

Earlier in my experiences, I recognized a degree of fatigue and muscular weakness in uncomplicated neurasthenia that seemed to me to demand absolute rest, not even allowing the head to be raised from the pillow. Of such a condition I have modified my views and see in the extreme exhaustion not amyosthenia, but psychasthenia, being led to such a conclusion by seeing the patient repeatedly perform some physical acts requiring a considerable expenditure of strength when his attention was not fixed upon the acts and followed by no ill effects; while again a lesser act receiving his attention would bring in its train vertigo, tachycardia, pallor and fatigue. It was my custom then to forbid even the simplest physical acts, and to meet the need of exercise I gave massage; but

with a clearer understanding of the source of these symptoms of weakness I tell the patient in detail how much exertion he should make, assuring him that such exertion is necessary to his progress, that he need have no fear of these symptoms and that they will soon pass if he ignores them with confidence in his ability to overcome them.

It is hardly necessary for me to point out the benefit and necessity of exercise. Massage is a substitute up to a certain point, also mechanical vibrations, and as such they are valuable aids in the early stages of treatment; beyond that point strength will develop faster through the gradually increased exercise. Exercise should be prescribed early, and often from the very beginning. Of course, it should be proportioned to the patient's condition and the patient should be made to look upon it in the light of a pleasure and not done as treatment; to exercise because it is, or should be, a normal, hygienic habit, and not take it and watch its effects as he would a dose of medicine, as he is very prone to do. I have seen a neurasthenic count the number of steps in his daily walk, increasing fifty or a hundred steps each day and endeavoring to calculate with equal accuracy and detail the amount of energy expended and the amount of strength gained. Such a patient may recover from his amyosthenia, but he will remain a psychasthenic or a hypochondriac unless he mends the error of his mental ways, and relapses will fall to his lot. Not only should the exercise be steadily increased, but it is as important to vary it in kind, thus avoiding monotony, maintaining the patient's interest and approaching the normal habit.

Having explained to the patient that these physical measures are aids in the building up of his physical health and in a general way how they act we must at once take up the psychotherapeutics. At the very outset we must have confidence in ourselves and our convictions or we cannot inspire confidence in the patient, and gain his confidence we must before we can make any progress. He must feel that we know our path from the many false leads that branch off from it, that we appreciate and know how to avoid the numerous pitfalls and obstructions that beset it, and that we are ready to meet or can anticipate the hidden dangers. Once his confidence is gained our unsupported assertion will often convince him, but often we will have to explain and argue our point in detail, and if he is of a logical mind it is better to do this, as thus he is in a position to call his own reason into play to guard his own health after he has once won it back. We can follow few fixed rules here, we cannot adhere to precedents and must be ready to burn our bridges behind us, and carry our point until results prove the correctness of our judgment.

Patiently we must listen to his whole story; let him talk himself to a standstill if he is so inclined, and do not miss any point, for he is likely to make small mention of the very point which is the key to the problem. Nothing is too small to listen to at first and later we can sift out and set aside the irrelevant. If the patient is reticent, patience, tact, an assurance of sympathy and of a desire to help and a wise persistence, or sometimes a wiser postponement of persistence to a more favorable mood will be called for. It is my custom to write down this record as nearly as may be in the patient's own phraseology; his own version of cause and effect, and if possible I have a talk with his most intimate relative or friend and thus obtain either a corroboration of the patient's facts or else a different and more accurate point of view. With this picture before him one can trace back to ancestors, childhood, or early life the mental defects and weaknesses and see how they have been developed by his own management of himself and his life, and by the exoteric influences bearing upon him. A study of this history together with the physical examinations will enable us to separate the psychic from the somatic causes. Then we will see psychasthenia and regard the physical symptoms as results or complications, not as causes of that disease. The study of the psychic causes will then lead us to the plan of our psychotherapeutics.

One clear, full, detailed explanation of the psychic causes and the consequent reasons for our method of treatment will seldom suffice for the patient, and we have to repeat it again and again and with many blows hammer our conviction into the patient until he is convinced. For conviction is necessary to the performance and permanence of his cure. He will say, "But I actually have indigestion, it is there, I know it and there is no imagination about it." Agree with him at once. He is right, it is there, and "it's no dream either." But point out to him that the indigestion is not due to the inability of the stomach to pour out its juices, or of the gastric muscles to properly grind and mix the ingesta, but is caused by the interference of the mind with those processes. "A watched pot never boils." Then he will say, "There you are mistaken, for I don't think of it until I feel the distress in my stomach." There he is mistaken, for his whole attitude of mind is one of watchfulness for new sensations, is stored with the memory of old sensations; he is ever ready to recognize and exaggerate every sensation into a pain and to conclude that every pain is a very serious matter. Constant thinking of and expecting pain can actually produce the pain, just as constant ignoring of such pains will cure them. He is sure to analyze his sensations but seldom correctly analyzes his thoughts, and in this matter nearly always "gets the cart before the horse." Often he is sincerely unconscious of this habit of thought and it will be hard to convince him of it. Don't make the mistake of speaking of "imagination," for imagination seldom exists and the distress does. The cure lies in ignoring it, being indifferent to it, being convinced that it is of no importance in itself and occupying the mind with other and healthy thoughts. So it is with the fatigue, the backache, the vertigo, the palpitation,

the frequent micturition and other physical symptoms. We will have less trouble in convincing him of the psychic origin of his nervousness, his depressions, his pessimism, his vague apprehensions and some of his phobias, because he will recognize these as mental symptoms, but he will still argue that his physical disease causes the mental state.

Inspire him with your own confidence, for confidence in his own powers is his most vital need and, together with the conviction of the mental origin of his trouble, is his greatest safeguard against relapses.

I often hear, "Well, if that is the case, the work is all up to me and you can't do anything for me." Now, if you know your patient and if he has the right qualities you can reply, "That is true. If you are convinced of the correctness of my views of your condition and will carry out my instructions with perseverance, you can do the work alone." Practically this is seldom the case, for few psychasthenics can do the work alone from the start, and need the continued help of the physician, how long continued depending upon the capacity they have for developing confidence, self-reliance and a stable conviction. They are like the man learning to ride a bicycle; his instructor explains to him how he should hold his wheel, how he should place his feet to mount, how he should sit, how pedal, etc., doing it himself to illustrate the proper method, but can the man grasp all these details, mount and ride off at the first trial? How many tumbles does he have, how many repetitions of instructions, and how much help before he becomes proficient enough to even practice unaided? Answer that by recalling your own experience.

I do not think that medication can be entirely excluded from every purely psychic case, but when I do compromise the question and give a tonic, or sedative, or hypnotic I am careful to impress upon the patient that these are only aids, neither essential nor important, and that his own mental control will do more good than any of them. Hypnotics may be the hardest to withhold, for natural sleep once lost is difficult to regain, and the normal indifference or disregard of sleep is replaced very easily by an insomnophobia, if I may coin the word. A habit of conscious sleep in a worrying mind is quickly acquired. By conscious sleep, I mean a state in which the subjective mind, which is the repository of our memories, carries on its activities unguided by the objective mind and so simulates the conscious mental forces that the person passes into sleep without perceiving it and awakens with the memory of his thinking and the conviction that he has been awake and thinking all the time. He may be entirely sincere in this belief, and unless positive proof that he has been snoring can be shown him, it is nearly impossible to convince him of his mistake. A feeling of certainty that one will sleep or an indifference toward it is necessary to a frame of mind that will bring about natural sleep. I impress upon the patient that resting quietly in bed will go a long way toward substituting what sleep he may lose and that he will not fail to get enough sleep to supply his needs until he regains the habit of natural sleep.

In this connection I am tempted to take up the consideration of hypnotism, or suggestive therapeutics, as a method of treatment in neurasthenia. Volumes have been written and volumes more will be written on this subject, and my own conclusions as to its therapeutic usefulness is all I will lay before you now.

The application of hypnotism with a stage setting, awesome and mystic, smacks too much of the fakir, and does more harm than good unless in isolated hysterical cases, as for the cure of hysterical paralyses, aphonia, some of the phobias or tics. The theory of Charcot and his school that hypnosis is only or chiefly applicable to the hysterical state is no longer tenable, and it is to Liébault of the Nancy school that we owe a more exact and rational explanation of hypnotism. According to the latter and his follower, Bernheim, hypnotism is really suggestion, and suggestibility is common to the healthy mind as well as to the diseased mind. All, or nearly all, persons are suggestible in some degree. The weird phenomena of the somnambulistic stage of hypnotism are more curious than instructive or useful; they are not essential to the production of beneficial therapeutics. The real usefulness of hypnosis lies in suggestion which we may employ without mysticism, without tragic mannerisms, mirrors, or other paraphernalia. It obtains its benefits through the influence of the operator's mind upon the subjective mind of the patient, and the effects are maintained in permanent benefit to the patient's health by the appeal to and education of his objective mind. It is the subjective or unconscious mind that controls and regulates the functions and sensations of the whole body, and it is this part of the mind that is always amenable to suggestion either from its own objective mind or from that of another person; if from its own, then "auto-suggestion" results, and from another mind comes "suggestion."

Professor Hudson says, "The faith required for therapeutic purposes is a purely subjective faith, and is attainable upon the cessation of active opposition on the part of the objective mind. . . . In all systems of healing, the processes, or rather the conditions, are essentially the same, the first essential condition being perfect passivity and receptivity of the patient. . . . Thus, the whole science of mental healing may be expressed in two words — passivity and suggestion." Again, "The more perfectly the objective intelligence can be held in abeyance, the more perfectly will the subjective mind perform its functions." Note particularly the last statement, for in that is the explanation of psychasthenia in a nutshell. The objective mind of the psychasthenic is not in abeyance and will not attend to its own business; it interferes with the work of its subordinate officer, gives him commands and countermands; it

tries to perform the duties of the subjective mind which it does not know how to perform. Is it any wonder, then, that the subjective mind gets "rattled" and chaos of function and sensation results? Of what use, then, to hypnotize the subjective mind, calm it down by making it recognize the commands of a cool, self-possessed authority, temporarily bring about order and system, and then leave the management again to the warped or diseased objective mind? The subjective mind does not reason; it is receptive and impressionable, accepts its impressions and commands and acts upon them without questioning to the best of its ability — like a true soldier.

It is necessary, then, that our suggestion should be supplemented by an education, instruction, or training of the objective mind in order that the benefits of suggestive therapeutics may become permanent. To this extent hypnotism is useful, and without this supplementary education you will lead him to depend upon hypnotism, or medicine, or osteopathy, or Christian Science, or other fad in vogue to do his own God-given work, or upon you to help him when he should help himself if he is to be well or to be anything or anybody. No man should expect another to live his life for him or to keep well for him; he must live his own life of mental health as well as bodily health, and to a large extent his health is what he makes it.

With all our experience and a clear understanding of the causes and of the channels through which these causes are active, we will find some cases in which we will fail. Often the patient's training and education are at fault and leave him so deficient in the ordinary normal qualities of character that he easily drifts into a neurasthenic state, a state that hardly deserves the name of disease and yet which renders his life useless. If your conception of neurasthenia is embodied in the literal meaning of the term "nervous exhaustion" these cases will puzzle you and will not respond to your physical treatment. Unless there is enough stable foundation in him to build upon, so that we can complete the necessary part of this moral and mental training, we can accomplish nothing, at least nothing permanent. Yet let me give a word of warning here. We cannot be certain beforehand of what we can accomplish; we cannot tell until we have tried. I have had some of the best results in cases which seemed to me most unpromising at the start. Dubois says, "We preserve our temperament throughout our whole life, just as we keep our physical blemishes; but we can modify it greatly by educating ourselves. Our physical deformities are often definite, but our mentality is always malleable." In this fact lies the patient's salvation, and we should not despair of molding his mind into the form of health.

If the patient has been the victim of circumstances external to himself, loss of friends, irretrievable financial losses and consequent lack of interest in life, our task will be a hard one, for in the face of such facts we cannot alter his outlook for the future, unless we can educate in him a higher altruistic philosophy of life,— a truly difficult task. Again the task is difficult when, as so often occurs in women, there has been no purpose in life and she has worn out the novelty and interest in the trivialities of her own selfish existence, when no duties or obligations appeal to her and when through disuse her response to the stimulus of unselfish motives has atrophied.

The consideration of congenital neurasthenia I have not taken up and my paper is already too long. I will only say that I believe it sometimes exists in the very young child, and perhaps if our perceptions are sufficiently acute we will observe it in the infant. In the child we are apt to overlook it, or to attribute the symptoms to some other cause, perhaps vague in our own minds. We are safe in such case in checking the mother's efforts to teach it even to talk, or to walk, or the other rudiments of physical existence, and if observed a little later on in life we should turn the child out to grass and stop its studies.

Gentlemen, I have scarcely more than scratched the surface of these considerations, exhausted none of them, but I fear I have exhausted your patience and will refrain from giving the records of interesting cases in my own experience which would illustrate some of these points I have laid before you.

STUDIES IN PSYCHOPATHOLOGY.

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(Continued from No. 11, p. 326.)

VI. CASE OF RECURRENT STATES WITH SUBCONSCIOUS CHILD-LIFE.

MR. C., a young man of twenty-five, a college student of good standing, is very able, conscientious in his work, and is scrupulously moral in his daily life.

Except for an aunt who has apparently died of tuberculosis, family history is negative. Parents are living and healthy, sisters and brothers are all well. Both maternal and paternal branches of the family are of good healthy stock, with no neuropathic or psychopathic taint. The family is well to do, and the members are intelligent, educated and able, so that the patient's childhood and early youth have passed amidst relatively healthy surroundings.

As a child the patient passed through children's diseases, but did not suffer from any nervous troubles. As a boy he has been of robust health, taking great delight in physical exercises and pranks characteristic of boyhood. Although he is now of a rather serious, scientific turn of mind, devoting most of his time to mathematics, mechanics, and to the various branches of physical science, he has been in his childhood and boyhood very impressible and imaginative. He was a great lover of fairy tales, an omnivorous reader of all sorts of extravagant stories and of voluminous novels. Dreaming was his delight. Many a time he went off into a dark nook and kept on dreaming about princes and princesses; sailing in airships, ascending inaccessible mountains, scaling high peaks and then descending into mysterious caves and chasms. He lived in his imagination the world over and in all ages. Time and place were no barrier to him. He lived "the universe over

and through eternity." He lived with fairies, spirits and genii, who built for him enchanted palaces. He was " at the creation of the universe and saw the formation of the world." Stories were to him histories, real histories in which he was the central figure, the real hero. When very young, he had auditory hallucinations, — " angels called him by name and listened in dreams to the music of the spheres." He ceased to have those hallucinations about the age of ten.

On examination, patient was found well nourished. Reflexes not exaggerated; field of vision not limited; no sensory disturbances; no motor disturbances. Memory for disconnected impressions is good, while his recollection of past events and memory for present events are in excellent condition. No disturbances of recognition. Sense of localization is very good, so also is his sense of orientation. He is rather a good visualizer. A few times in his later years he experienced illusions of reversion of locality and also hallucinations of recognition of having seen the place before. Voluntary attention is in excellent condition. His conception of abstract ideas, his logical acuteness for points and distinctions, for comprehension of complicated trains of reasoning and for disputation by logical processes are truly remarkable. His sleep is very good and he has no bad dreams, though he is quite an active dreamer. The color field, on closure of eyes, is " brilliant," and his hypnagogic and hypnapagogic [4] hallucinations are often very rich and brilliant in color.

Of late, the patient has been hard at work, studying for his examinations; he has been worrying over some family troubles as well as over his future career. He is somewhat nervous and restless, and occasionally a fit of irritability seems to take possession of him, an irritability which he sometimes has great difficulty to suppress. The patient complains of irritation of the bladder, — he cannot retain his urine for more than five minutes at a time and sometimes less than that. When he makes an effort to control his urgent desire to urinate, he is getting anxious, begins to feel hot, his eyes begin to hurt and feel queer and bulging, and he has a very painful, distressing feeling of tension in his forehead, almost amounting to a severe headache. During that time he feels confused, his attention is wandering, his apprehension for complicated trains of thoughts becomes defective, his desultory memory becomes extremely poor, he cannot repeat any series of disconnected syllables, while his logical memory for phrases and connected events becomes very vague. All those distressing symptoms are instantly relieved as soon as the pressing need for urination is satisfied. This insistent troublesome desire of urination disturbs the patient's studies, interferes with his regular work, makes him undergo tortures in the lecture-room, or in church during services, or when visiting some friend. When, however, he gets greatly interested and absorbed in his work or in some conversation, the insistent distressing desire disappears for hours together. As soon as the interest lapses the insistent desire reappears.

In addition to this insistent desire there is also present the insistent idea that along with the continuous outpour of the urine there is also an oozing out of his " vitality." This fear of loss of vitality gives rise to an almost continuous examination of the urine to discover any abnormal changes. The color, the dribbling, the feel of the urine,—all are noticed and watched with a feeling of anxiety. The patient is conscious of the absurdity of the insistent idea, but he cannot help it. The idea gets the better of his reason.

[4] From ὕπνος, sleep, and ἀπάγω, lead away; a term used by me for dream hallucinations of the intermediary state in passing from sleep to waking, in contradistinction to hypnagogic hallucinations of the state of falling asleep.

Occasionally, when he gets specially fatigued, an idea at which he feels extreme disgust enters his mind. When entering into close conversation with a male person, the idea of homosexual relations gets possession of his mind. He does not have the least desire, in fact, he feels disgust at the very thought of it. He cannot account to himself for the reason of it, whether or no it is the horror of the idea which suggests it by association of contrast; he cannot understand it; the idea to his extreme disgust flashes on his mind; there is absolutely no desire accompanied with it, but deep disgust. The idea comes suddenly and as suddenly disappears. When the idea is gone, he afterwards wonders how it could have possibly entered his mind at all. It appears to him so " idiotically stupid." " Why should such a disgusting, stupid thought come to one's mind? "

The patient is also troubled by a form of *folie du doute*. He is not sure that the addresses on his letters are correctly written; and no matter how many times he may read them over, he cannot feel assured that the addresses are correct. Some one else must read them and assure him that the letters are addressed correctly. In the absence of others he has devised the plan of copying the address from the envelope. This is somewhat more satisfactory, but then sometimes he is seized with the idea that may be the copying is wrong. Now and then he can help himself out by reading the address aloud. The seeing, reading aloud, the hearing of the words read and the feeling of pronouncing the words, along with the movements of copying—all those sensory stimuli seem to help to intensify the sense of reality and increase the feeling of assurance in the " real correctness " of the address.

When he has to write many letters sometimes a sudden fear gets possession of him that he had interchanged the letters and had put them into the wrong envelopes. He has then to tear open the envelopes and look the letters over and over again to assure himself that the letters have been put by him into the right envelopes. He becomes satisfied when assured by some one else. Before he drops the letters into the letter box he must repeatedly read over the addresses to be fully sure that he has the addresses all right. This condition is not a permanent one, as this whole trouble disappears for weeks and reappears when he is greatly worried or greatly fatigued.

Similarly, in turning out the gas-jet he must needs try it over and over again, and is often forced to get up from bed to try again whether the gas is " really " shut off. He lights the gas, then puts it out, then tries to test the gas-jet with a lighted match to see whether the gas leaks and is " really " completely shut off.

Similarly, in closing the door of his room, he must try the lock over and over again; he locks the door and then unlocks it again, then locks it once more, still he is not sure; he then must shake it violently so as to get the full assurance that the door has been actually and " really " locked.

One is almost tempted to generalize that the sense of reality is weakened in the patient. But is it not strange that this weakness of the sense of reality should only be in relation to particular ideas and acts, while it is in excellent condition as far as all other ideas and acts are concerned? It is not the sense of reality then that is at fault, — it is the insistent idea.

At one time he suffered from palpitation of the heart and he thought he had some heart trouble, for which he visited many physicians who kept on palpating, auscultating and percussing his heart, giving him all kinds of directions and precautions, putting him on a strict diet, regulating his exercises, prescribing bromides, digitalis and strychnine. But the more physicians regulated

and prescribed, the more the refractory heart kept on thumping. Finally, losing patience, he gave up treatment and felt much better.

Another trouble which has possession of him, though it is not very insistent, is the fear of getting consumption, or of being infected. Sometimes the fear becomes very troublesome, and it becomes a regular mysophobia, a *délire du toucher;* he may then keep on washing himself incessantly, rubbing his skin until it gets sore. Although the patient feels quite troubled, when the fear is on him, still it is not persistent; it seems to come in flashes, and he is quite free from it for long intervals of time. Still he has the feeling that the fear is there and it requires only special conditions to have it awakened. The mere sight of a supposed case of an infectious disease, or the contact with a tubercular patient, is sufficient to revive the state of mysophobia.

There are again times when he feels as if his will is paralyzed. This condition comes on him at great intervals, when he happens to be very tired and he is in a state of abstraction and reverie. He feels as if he has no power of movement, he has hardly the strength to ask for a glass of water. When the water is brought to him he cannot reach out for it. He cannot account for this peculiar feeling that sweeps over him so suddenly. He knows well he is not paralyzed, and still he cannot move. It is an attack of abulia, it is his will that is paralyzed. After making one effort the spell is broken.

Recently, an insistent idea has gotten hold of the patient's mind, an idea which is very distressing to him and which makes him miserable. He thinks of tearing out his eyes and put them under some weight and have them crushed. If the patient sits in a chair he thinks of putting the eyes under the chair and have them crushed. If he goes in a car, he thinks of having his eyes crushed under the wheels of the car. He tells me that the insistent idea is sometimes so vivid and real that he can almost feel the cars passing over the eyes and that he can almost hear the eyeballs crush and crack. The patient fully realizes the absurdity of the idea, but it keeps on coming against his will. The idea comes in flashes, leaves for some time and then comes again when he expects it least.

By means of the method of hypnoidization and hypnoidal states the following data were obtained:

When a young child the patient lived with an old grandfather of his who suffered from bladder irritation with incontinence of urine, obliging the latter to go to the toilet-room almost every five minutes. He was very much attached to the poor old grandfather, whose sufferings evidently made a very deep impression on the child. The grandfather was also absent-minded and had to try to close the door or turn the key in the closet many times before he could fully be assured that the closet door was locked. The grandfather had also difficulty and hesitancy to handle the various things given him. When he asked for water, the glass given him was sometimes left on the tray for several minutes before he was reminded to take it. All this the child watched with great sympathy and distress. Being a highly impressionable, sensitive and imaginative child, can we wonder that his mind has been deeply impressed with what had taken place before him every moment of his young life?

It was also in relation to his grandfather that he overheard people say that "the vitality is oozing away." In his childish mind he connected the oozing of vitality with the urination. All this was associated with anxiety and trepidation for the "oozing vitality," and, though those sad experiences have all gone from the patient's conscious memory, they have not, on that account, ceased their life existence, — they have simply lapsed from his personal consciousness, but only to become submerged into his subconscious life; and from the depth of his subconsciousness these dissociated, disaggregated experiences of child-life kept on recurring as insistent psychomotor states with all the intensity of anguish of the original experiences. Instead, however, of the symptoms being associated with his grandfather, they have, by a very natural process of confluence and foreshortening, become grouped around the emotions which the patient has actually gone through at that time of his life, and have hence become associated with himself. The patient was living over again in his own subconscious life the life experiences of his deceased grandfather, experiencing all those various distressing symptoms for which the patient could consciously give no account. May we not in a certain sense say that the grandfather's sufferings have been transmitted to the grandson? May we not say, be it in a figurative sense, that the grandfather's life has become resurrected in the subconscious self of the grandson?

The abulia manifested by the patient no doubt took its origin in what may be termed the subconscious "grandfather cycle" of experiences. Other experiences belonging to different cycles have also co-operated subconsciously and have helped to give rise to the state of will-defect. In one of the hypnoidal states it has come to light that, when the patient was very young, probably not more than six, he was taken to the bedside of a child of twelve who was stricken down with some form of paralysis. Once the experience struggled up in the hypnoidal state it stood out clear and distinct. The patient could in his mind's eye see the courtyard, the house, the people and the paralytic child lying helpless in his little bed, a kind of a crib. Even now when the subconscious experiences have become identified not as his own, he still feels a sinking sensation "in the pit of the stomach" and nearly feels the helplessness of the paralytic child. We can realize what a deep and lasting impression such an experience may have on the tender mind of an extremely sensitive and highly imaginative child. The great sensitivity and impressionability of the child can be gathered from another fact that also became revealed in one of the hypnoidal states. At about the same age of six or seven, the period to which the cycles of dissociated experiences belong and which have later on given rise to most of the distressing symptoms from which the patient has been suffering, when the child was in school, a man with a paralyzed right hand happened to come into the schoolroom. The child represented to himself vividly this same condition of paralysis in his own hand; he felt his hand and fingers growing powerless and his arm hanging limp by his side. Finally the feeling of helpless-

ness and mental anguish became so intense, the paralysis so real that, overcome by his emotion, he fainted away. He was then sick for a few days. There is little doubt that such experiences have largely contributed to the patient's abulic state in which his will to move his limbs and especially his hand is paralyzed.

Now as to the homosexual ideas, what was the cause of ideas of sexual inversion, unaccompanied by any desire, foreign to the patient's nature and associated with a feeling of almost "nauseating disgust"?

In one of the hypnoidal states subconscious experiences emerged which, after a little tapping and close following of the course of the warped train of subconscious associations, finally assumed the shape of the following connected account: When about the age of eight and a half he entered a private school in which there were also boys of the age of sixteen. Two of those boys gained his friendship and one day took him out for a walk into the woods. There they told him of a secret club they had formed and asked him to join it. The little boy was much pleased by an invitation to join a club of big boys. They then took him farther away into the woods into some lonely corner where they proceeded to enter into homosexual relations and urged him to imitate them, ending their urgings by forcible seizure. The little fellow got frightened and ran; the big boys gave chase, but they soon gave it up, as he hid himself in some thick bushes. He told his parents about it and was taken out of the school. This experience lapsed from his conscious memory, but remained firmly imprinted on his subconscious memory, giving rise to the apparently unaccountable homosexual ideas at which he felt so much disgust. The homosexual ideas were really foreign to his character and no wonder his whole nature felt revolting disgust toward them.

There are other ideas, some of an insistent, some of a pleasing character, some of an apparently persisting æsthetic type, deas and ideals, unaccountable on any other view, but on the theory of dissociated states and disaggregated subconsciousness. We cannot possibly describe here all of them, but we can bring a couple, typical of the rest. Why should the patient be pleased and even become sexually excited at the sight of a green petticoat? Why should the smell of heated iron, the sight and feel of starched clothes be so agreeable and even sexually exciting? Why should a prominent abdomen, large hips, long, pendulous breasts, a few small black patches, interspersed with some little red pimples on the face have a sexual attraction and possess the significance of sexual stimulations? Why, again, should his ideal of feminine beauty be jet black, curly hair; large, black, lustrous eyes; a pale, somewhat dark, skin; a pouting mouth; a low forehead and a slightly protruding chin? The method of hypnoidization and the hypnoidal states induced give an insight into those apparently unaccountable and whimsical mental states and reveal their origin in subconscious states of his early boyhood and childhood.

Now in the hypnoidal states the image of a female figure emerged, a figure which the patient recognized as a nurse of his whom he had up to his fifth year. She was a young woman of not more than thirty, of tall stature, with big hips and pendulous breasts, her face bearing the markings of small black plaster patches and red pimples. He sees her ironing some white goods while he tucks and pulls at her dress, at her green petticoat. She used to fondle him, kiss him, embrace him and press him to her breasts with which she often let him play. All those subconscious experiences of the patient's childhood have helped to endow definite sensations and peculiar physical characteristics with an otherwise unaccountable attraction and sexual significance. Likes and dislikes, however trivial, especially if they belong to the fundamental instincts, are not accidental matters of chance, with no reason and meaning, — they can be traced, if one is sufficiently persistent with the hypnoidal state and the method of hypnoidization, to definite dissociated, subconscious activities.

Similarly, in the case of the patient's ideal of feminine beauty, the method of hypnoidization and the hypnoidal states brought out the underlying subconscious states. When the patient was of the age of seven he lived in the same house with his maternal aunt who had a little girl who was his companion in his plays and games, whom he worshiped and adored. It was that little cousin of his that had possessed all those physical characteristics, — black, curly hair; large, black, lustrous eyes; a low forehead; a pouting mouth; a pale, dark skin; a slightly protruding chin, — characteristics which have formed the foundation of his ideal of feminine beauty. These subconscious states — the basis of the ideal of feminine beauty — gathered all the more latent force from the circumstance that the little girl fell a victim to an infectious disease, scarlet fever, and the little fellow stood at the deathbed of his little cousin.

All those experiences may be regarded as belonging to the patient's "sexual cycle" of subconscious life activity. We may turn now to other subconscious systems which may be designated as the "infectious cycle." What is the origin of the patient's mysophobia? Why and whence his fear of death and palpitation of the heart? As a very young child and at a very tender age he had a rather rich experience in witnessing death agonies. He was present at the deathbed of his great-grandmother just at the moment when she gave up her ghost in the arms of his grandfather; he also watched the death agonies of his aunt who died of tuberculosis. When at the age of seven and a half an epidemic of scarlet fever broke out in the house; his sister, his younger brother and the little girl, his cousin, fell victims to the contagious disease, and he was present at their deathbed. During the hypnoidal states an image of a figure suddenly appeared before the patient's mind, held the hand over the heart, then fell with blood gushing from its mouth. The patient could not identify the

figure, but he felt it was some real experience. It is quite probable that this related to some actual event of his very early childhood. The fear of infection and of death, as well as the palpitation of the heart consequent on such fears, were, by means of the method of hypnoidization and the hypnoidal states induced, traced, as have been the rest of the recurrent psychomotor states, to dissociated subconscious experiences.

But why those insistent ideas about the eyes? For some time this could not be answered. One time, however, the patient happened to go into a deep hypnoidal condition, he fell into one of those intermediary states closely bordering on hypnosis. In this intermediary subconscious state new episodes from the patient's child-life emerged. We may characterize this cycle of subconscious experiences as "the great-grandmother episode." An ancient great-grandmother of his lingered in the same house with the patient. While in his deep hypnoidal state the patient could clearly see the tall figure of his great-grandmother. She was greatly emaciated, skin and bone, and he stood in awe of her. Now this great-grandmother of his suffered from inflammation of the eyes. In his hypnoidal state the patient could recollect the many different liquids she used as washes for the eyes. She lived in a dark room and complained she could not see, the eyes pained her so much. And now a new experience emerged. Once the patient happened to get an inflammation of the eyes. How he dreaded those great-grandmother's bottles! And now he had to undergo the ordeal of having his eyes bathed by his great-grandmother's various washes. He also remembers some horrible stories told of people who have pains in the eyes, how the eyes "swell and bulge and then crack and burst." He also recollects stories of people with "glassy eyes," who can take the eyes out and have them "crushed and cracked by passing objects." We can well imagine what a deep and lasting though subconscious, influence such gruesome tales may exert on the sensitive mind of a highly imaginative child.

Thus by means of the method of hypnoidization and of the hypnoidal or intermediary states the various threads of the complex web of insistent or recurrent psychomotor states with their concomitant symptoms have been traced to dissociated subconscious activities having their origin far back in the dim regions of the patient's child-life. The dissociated subconscious experiences, like the moment consciousness of low types, kept on recurring with the same or similar mental content and psychomotor reactions, giving rise to apparently unaccountable, irrational, insistent ideas and emotions, deeply affecting the patient's selfconsciousness.

(To be continued.)

Seventy-fifth Birthday of Dr. S. Wier Mitchell. On Feb .15, Dr. S. Wier Mitchell celebrated his seventy-fifth birthday.

New Instrument.

A NEW OBSTETRIC FORCEPS.

BY FREDERICK L. GOOD, M.D.,
Former House Physician, Boston City Hospital, Gynecological Service; Former House Physician, Boston Lying-In Hospital.

After a service of six months as house physician at the Boston Lying-In Hospital, I feel that the several varieties of axis traction rods now in use are inadequate for best operating and that better results can be obtained if certain difficulties in the application and adjustment of the rods be eliminated.

The main difficulty with the present rods is that in certain varieties they are not permanently attached to the blades, and that in others, although attached, it often takes much time and assistance to secure their proper adjustment.

It is admitted by many obstetricians that some presenting heads, really low in the pelvis (the so-called intermediate heads), are best delivered by traction rods; for this reason it occurred to me that as an aid to the obstetrician, and consequently for the best interests of both mother and baby, the ideal forceps would be one with permanently attached rods which would come well down on the handles and could readily and with no loss of time, be utilized.



Plate 1. Rods attached showing how they will in no way interfere with low forceps operating.

Another objection to the present rods is their limited motion at the site of attachment — so limited that in some operative cases it is impossible to get the desired line of traction.

The forceps here presented, I believe, does away with the above mentioned difficulties and reduces the high forceps operation to a more simple procedure.

Plate 1 shows the traction rods already applied to the forceps, in grooves having the same axis as the handles, the left rod running down from

the fenestrum, following practically the same line of direction as the blade itself and attached at the end of the handle and posterior by a spring-lock. The right rod is attached at the fenestrum, is then carried in front of the shank and follows the same general line of direction as the right blade — differing from the left only in its position — it being anterior instead of posterior. The spring-lock at the end of either handle, for retaining the rods in position, will be eliminated in other forceps; not because it is a bad feature, but it is not an essential one and the rods can be as well fastened by means of a pin lightly catching the handles. In order to bring the right rod down into the right handle it became necessary to cross over the lock, consequently decreasing the "depth" of the lock to a slight degree.

Plate II shows the rods free from their attachment to the handles and attached to the traction handle, the blades being locked by a T-shaped clamp passed through the handles and regulated by a thumb-screw at the opposite side. This apposition clamp will in no way interfere with making changes from one method of operative delivery to the other.

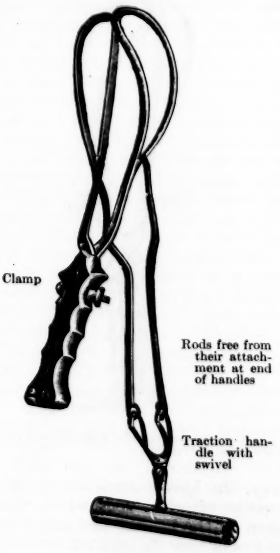


PLATE 2.

After having applied and locked the forceps, one uses very little pressure on the thumb-piece of the left rod, thereby freeing it from its attachment and allowing it to drop back to be attached to the axis traction handle. The right traction rod is then lifted from its attachment by means of its thumb-piece, is carried over the left handle and dropped back as was the left. The rods are attached at the fenestra in such a manner that one can rotate them completely, and when attached to the handle allow of traction at an angle of 90°; they are so made to fit the fenestra that it is impossible for them to fall out, but they can be easily removed by the operator.

The traction handle consists of a modified Y-shaped apparatus, attached to the middle of a transverse bar, hook-shaped at either arm of the Y, and with a spring so attached that the rods cannot slip from the handle. The arms of the Y work on a swivel, thus assuring an equal pull on either rod. The instrument has been made according to my directions by Codman and Shurtleff.

I believe that the above described instrument will facilitate high forceps operations considerably, — facilitate it for the obstetrician because of its easy manipulation; facilitate it for the mother because of the lessened liability to do injury during the delivery; facilitate it for obstetrician, mother and baby because of the less time it will take to apply and utilize traction.

Medical Progress.

PROGRESS IN THE THEORY AND PRACTICE OF MEDICINE.

BY HENRY A. CHRISTIAN, M.D., BOSTON.

THE CLINICAL DETECTION OF ALBUMINURIA.

"ALBUMINURIA" as used clinically is not a very exact term, but refers to the presence in the voided urine of any albumin body which responds to the tests for albuminous material. Further, the sources of such substances may be any portion of the genito-urinary tract. As there is this possibility of variation both in the nature and source of the albuminous material, obviously the presence of it in the urine will be of a varying significance. Catheterization will exclude almost entirely the genital tract as a source, but it is hardly feasible to thus obtain all routine specimens, and even were it done, the bladder, ureter and hilum of the kidney remain as possible extra renal sources for the albuminous material. Fortunately, a determination of the nature of the albuminous material and its association with formed elements in almost all cases gives evidence as to the source and significance of the albuminuria.

Numerous albumin bodies may occur in the urine, but all except four, nucleo-albumin, serum-albumin, serum-globulin and Bence-Jones's albumin, may be neglected in the usual clinical examination. Nucleo-albumin, whether its source be renal, cystic, prostatic, testicular or urethral, occurs alone very frequently in the urine, appears to be non-nephritic in origin and so is to be excluded before using the presence of albuminuria as evidence of nephritis. Bence-Jones's albumin (albumosuria) apparently does not indicate a renal lesion but is of diagnostic importance in multiple bone tumors. Serum-albumin and serum-globulin usually occur

together and their presence almost always indicates a damaged kidney. It is of particular importance to distinguish nucleo-albumin from serum-albumin or serum-globulin when the reaction is very slight. The failure to do this is largely responsible for the clinical uncertainty as to the significance of the report of the presence of the "slightest possible trace of albumin" in a specimen of urine.

For practical purposes what is needed is a group of tests easily carried out and requiring but few and stable testing fluids, which will enable us to determine the nature of the albuminous material. The two tests most generally used, the Heller nitric acid test and the heat acetic acid test, possess the advantages of simplicity, but have two defects in that they do not distinguish nucleo-albumin, which is of very little significance, from serum-albumin, which is of much import, and they fail to detect either when present in small quantity under conditions in which there is a urine of very low salt content. Hastings [1] has suggested simple tests which appear to possess the desired characteristics, and deserve a very general trial.

He suggests the following procedures: A test tube two thirds full of urine is heated in the upper third; a cloudiness may be due to nucleo-albumin, serum-albumin, serum-globulin, Bence-Jones's albumin, phosphates or carbonates. The addition of 2 to 5 drops of 50% acetic acid and second heating clears the solution unless the first three are present.

If the reaction is faint ("faint trace"), probably serum-albumin or nucleo-albumin or both are present. The presence of nucleo-albumin is tested for by diluting 3 to 5 cc. of urine with five to six times its volume of distilled water, adding to one half of this diluted urine 1 to 2 cc. of 50% acetic acid cold, not heating; a diffuse cloudiness in the acidulated one half is nucleo-albumin. (It may be mucin, but mucin will not respond to the first heat and acetic acid test.)

Nucleo-albumin is not precipitated by heat and acid in highly "salted" urines. To prove serum-albumin, therefore, to the urine add one fifth volume of saturated sodium chloride solution, heat upper third, add 2 to 5 drops of 50% acetic acid, heat a second time; a persistent cloud equals serum-albumin. (May be present with serum-globulin.)

If there be a massive reaction, usually serum-albumin with serum-globulin is present, or there may be albumose (Bence-Jones), or serum-albumin alone or with fibrinogen.

To separate serum-globulin and albumose (Bence-Jones): To the urine add one fifth volume of saturated sodium chloride solution and 2 to 5 drops of 50% acetic acid, without heating; a cloudiness may be due to serum-globulin or albumose (Bence-Jones) (rarely serum-albumin alone). Heat upper third; a heavy cloud followed by partial clearing suggests albumose (Bence-Jones); persisting cloud serum-globulin, or serum-albumin or both. Boil entire tube; filter; heavy cloud reappearing in filtrate on cooling is due to albumose (Bence-Jones). A faint reaction on cooling, due to deutero-albumose, often appears and this has practically no clinical value.

For serum-globulin: To a test tube of distilled water add urine, drop by drop to 8 or 10 drops; no heating; a cloud (cold) indicates serum-globulin. This cloud clears after addition of 2 to 5 drops of acetic acid (cold).

The most reliable test for serum-albumin in urine is that of "salting" the urine with a saturated solution of "salt" (sodium chloride) as described above, acidulating with 50% acetic acid and heating to boiling; this throws down all traces of serum-albumin and prevents a nucleo-albumin reaction.

It is important in all cases where there is a faint reaction to use fresh specimens, since in the presence of bacteria a positive reaction may be obtained as shown by Hastings, probably due to autolytic processes in dead bacteria.

Hastings and Hoobler [2] have used these tests in 3,089 urine examinations. Of these, 26.5% showed nucleo-albumin alone, and in none of these was there any clinical evidence of nephritis. In 14% the reaction for serum-albumin appeared only after salting. As a result of these examintions, Hastings and Hoobler regard albuminuria with casts as good evidence of nephritis, either temporary or permanent, but non-renal albuminuria is frequent, a fact more generally recognized by the genito-urinary surgeon than by the general practitioner.

PROFUSE HEMATURIA AND COLICKY PAINS IN NEPHRITIS.

These symptoms, so characteristic of stone in the kidney, may be very misleading. Besides nephrolithiasis, profuse hematuria occurs in tumor and tuberculosis and some rare conditions as telangiectasis of the pelvis of the kidney. Surgeons from time to time operating on account of these symptoms fail to find any cause for the hemorrhage and a number of such cases have accumulated in the literature. Moderate hematuria is of course quite common in cases of nephritis, even in the chronic varieties. In 562 cases of chronic nephritis studied in the Königsberg Klinik, Askanazy [3] found blood in the urinary sediment in 190 (35%), and in 11 of these the hemorrhage was profuse, in some accompanied by colicky pain. The diagnosis in three of these cases were confirmed at autopsy and in all the clinical symptoms were characteristic of chronic nephritis. Other observers have reported enough similar cases to make it certain that profuse hematuria with or without colicky pains may occur independently of such lesions as stone, tumor, tuberculosis and the like. Cystoscopic examination in some cases has shown the source of hemorrhage to be unilateral and the pain may be identical with that of renal colic, and accompanied by nausea, vomiting, chill and fever.

Askanazy believes this condition is most often associated with chronic nephritis, notwithstand-

ing the fact that a number of observers have reported the kidneys to be normal. The condition is more common in males. It is clearly not an acute exacerbation of the nephritis as urinary analysis and absence of uremic symptoms show.

Several explanations of this condition have been given. Pel believes a urine rich in crystals without the formation of true calculi may cause it. Zondeck thinks that small calculi overlooked in renal calyces are responsible. Senator attributes it to adhesions about the kidney. Israel, and with him Askanazy agrees, explains the condition as the result of a paroxysmal congestion. The pain may result from the congestion or in some cases from the expulsion of blood clots. Askanazy states that ecchymoses are very common in the pelvis of the kidney in cases of chronic nephritis, without evidence of renal cyanosis or inflammation in the pelvis. From these facts he thinks that most frequently the source of the hemorrhage is in the renal pelvis and its cause the paroxysmal congestion intensified by heightened blood pressure and vascular alteration. Surgeons operating on these cases have often noted the great tension and congestion of the kidney.

Whatever the explanation of the condition, it is to be borne in mind that profuse hematuria and colicky pains may occur in the course of a chronic nephritis and without cause other than this renal condition and associated changes. When they occur they do not necessarily mean stone, tumor or tuberculosis.

UNILATERAL RENAL LESIONS.

Infection of the kidney may occur either as an ascending infection (urogenous) or by way of the blood stream (hematogenous). The former is usually associated with obvious lesions of the lower genito-urinary tract and is well recognized. The latter is more uncommon and is more apt to be overlooked. Both may be unilateral. Acute unilateral lesions of hematogenous origin have recently been discussed by Brewer, [4] Cobb [5] and Eisendrath [6] under somewhat different titles. Brewer terms them septic infarcts, Cobb hematogenous infections and Eisendrath septic pyelonephritis. The use here of the term "infarct" seems unfortunate, since the cases described by Brewer are anatomically quite different from infarcts as the term is ordinarily used. They are rather foci of inflammation, set up, it is true, by organisms brought in the blood stream; but were we to call them infarcts on this account, many other suppurative foci as well as tumor metastases would be entitled to the same designation. Pyelonephritis is an equally bad word for these cases, since in most of them the pelvis of the kidney is unaffected. Eisendrath, however, describes in his paper two cases, one of pyelonephritis, the other a hematogenous infection, apparently himself confusing the conditions. Acute hematogenous infection, as used by Cobb, is a preferable term, though Cobb himself does not entirely get away from the idea of infarct in describing the lesion.

The diagnosis of this condition is what interests the internist. Some cases show very slight localizing symptoms and are apt to be undiagnosed. In others with the high temperature, rapid pulse, leucocytosis and prostration of an acute septic process there is pain in the region of the kidney, often colicky in character, tenderness in the costo-vertebral angle and some regional muscle spasm, while urine examination shows albumin, pus and blood cells. If a cystoscopic examination is made, the pus and blood will be seen to have a unilateral source. Most of the reported cases have been women, and in the right kidney far more frequently than the left. The latter point leads to mistaken diagnosis of cholelithiasis or appendicitis, according as the pain radiates up or down.

To explain why one kidney is involved has been the subject of much speculation and some animal experimentation. It is believed that bacteria are quite often excreted through the kidney without damaging it. If, however, one kidney is already abnormal in some way, or if it has previously been injured by trauma, it seems that under these conditions the arrival of bacteria in the blood stream is likely to produce a lesion and this is the usual explanation offered.

Some of the mild cases may yield to urinary antiseptics and bland diluents, but the condition is essentially surgical and should be so treated either by nephrotomy or nephrectomy.

Nephrolithiasis, tuberculosis, pyonephrosis, hydronephrosis, pyelonephritis and tumor form a large group of cases in which a chronic renal lesion may be unilateral. There has been some clinical evidence adduced for the existence of a chronic unilateral nephritis, but in almost every case the proof is very insufficient. The diagnosis has been made in a number of cases by surgeons at operation, especially by those performing the decapsulation operation of Edebohls, but the difficulties of a diagnosis of the presence or absence of nephritis under these conditions is very great. The frequency with which at autopsy the diagnosis of the renal condition must be deferred until microscopic examination can be made, further attests the uncertainty that must surround such surgical diagnosis and this evidence alone cannot be accepted as of much value.

The very great rarity of a unilateral chronic nephritis is at once evident from an examination of autopsy statistics. That the condition may exist is shown by a case of Stich,[7] where in a woman of thirty who gave no history of previous renal disease, with bilateral acute ascending pyelonephritis, the left kidney showed no chronic lesions, while the right showed a marked chronic diffuse nephritis as proven by microscopic study. Stich, in a study of the German literature for the fifteen years prior to 1904, could find no other reported case of a demonstrated unilateral chronic nephritis. Rayer, [8] in 1894, however, had described a case in a man of twenty-six, with left-sided chronic nephritis and a normal right kidney, the diagnosis being based on the microscopic findings at autopsy. Other cases very probably

have been observed but they are difficult to find in medical literature and the condition is at least very exceptional.

Two cases of chronic unilateral renal lesions which have come under my personal observation are of interest in this connection though they are not, strictly speaking, cases of simple unilateral chronic nephritis. However, they are closely allied to this condition and at operation would most likely be so classed. Both cases were autopsied by me several years ago at the Boston City Hospital. Both were females, aged thirty-six and sixty respectively. The kidneys are described as follows:

Case I. Right kidney, weight 170 gms. Cortex 7 mm. thick. Capsule strips off easily leaving a smooth surface. Kidney of a dark red color and stellate veins prominent. Cut surface very bloody and markings distinct. Microscopically kidney shows much cloudy swelling.

Left kidney measures 4 x 6 x 2 cm., embedded in a mass of fatty tissue. The capsule, which is ½ mm. thick, is stripped off with great difficulty leaving a fairly smooth surface. Over the kidney surface are many nodules (2 mm. to 1 cm. in diameter) of a yellow gray color and firm consistency. On section they appear homogeneous and of a yellowish gray translucent color. They project above the cut surface and are very elastic. On cross section the kidney substance measures only 2 to 4 mm. in thickness, is of a pale red color and dense consistency. In the kidney substance are many of the above mentioned nodules. The entire central part is replaced by fatty tissue. The hilum and ureters are patent. In the left renal artery, just at its origin from the aorta, is a yellowish, firm, irregular nodule about 3 mm. in diameter, projecting from the vessel wall into its lumen, and partially obliterating it. Beyond this the vessel wall is normal and the artery patent to its end in the kidney substance.

Case II. Left kidney weight 235 gm. Measures 14 x 6.5 x 4.5 cm. Is smooth. Capsule strips easily without bringing away any kidney substance. On section is pale. Glomeruli and markings of pyramids indistinct. Cortex 8 mm. thick. Teased specimen shows presence of many fat droplets in tubular epithelium.

Right kidney, weight 40 gms. Measures 9 x 2.5 x 2.5 cm. This mass is made up almost entirely of cysts from 1 to 2 cm. in diameter and filled with clear fluid. These are separated by only a thin wall of kidney substance. At the upper pole kidney tissue reaches its maximum thickness being there 1 cm. The hilum of this kidney is dilated but the ureter is patent, of normal caliber, and shows no evidence of obstruction. The right renal artery is about one third the size of the left but shows no thickening or obstruction.

THE DIAGNOSIS OF AMYLOID KIDNEY.

Since Lehmann [9] first demonstrated the presence of globulins in the urine, their diagnostic importance has been a subject of discussion. Hoffman [10] believed that the so-called albumin quotient of the urine (the relation of albumin to globulin) was of prognostic importance; the smaller the amount of globulin in ratio to the amount of albumin the better the prognosis. Csatary [11] pointed out that in amyloid kidney the globulin excreted in the urine was large in amount. Markus [12] showed later that globulin could be separated into two bodies,— euglobulin, insoluble in water, and pseudoglobulin, soluble in water. Wallerstein [13] and Joachim [14] found in amyloid kidney a considerable increase of euglobulin, while this was present in only very small amounts in nephritis unassociated with amyloid.

Zak and Necker [15] in a series of amyloid cases by one-third, one-half, and complete saturation of the urine with ammonium sulphate determined the amount of euglobulin, pseudoglobulin and albumin. They found that the relation of euglobulin to pseudoglobulin might show marked and rapid variations, but the finding of a rich excretion of euglobulin was diagnostic of amyloid kidney, though the converse was not true since in amyloid kidney there was an intermittent euglobulinuria. They express no opinion as to the relation of this excretory phenomenon to the renal lesion, but regard it as a valuable diagnostic aid.

URINE SEGREGATION BY MEANS OF KIDNEY MASSAGE.

A method suggested by Cowie [16] may prove of diagnostic assistance in some cases, especially in determining which kidney is diseased. It consists in washing out the bladder thoroughly, and then vigorously kneading and percussing the abdominal wall in the region of the kidney for about five minutes. After this the bladder is washed out and the fluid examined for cells and bacteria. Then the same process is repeated for the other renal region. The two bladder washings are compared. In this way a renal tubercular lesion may be accurately localized for subsequent nephrectomy, as in the case reported by Cowie.

EXPERIMENTAL NEPHRITIS.

In recent years a number of investigators have been successful in producing an experimental nephritis, and this has aided much in a clearer understanding both of the pathological histology and the pathological physiology of the disease as we see it in man.

Ophüls,[17] by feeding guinea pigs and dogs small amounts of lead carbonate, lead acetate or potassium bichromate over periods of a few weeks to one year, has succeeded in producing a condition of the kidneys quite similar to that found in chronic interstitial nephritis.

In the earlier stages there is a certain amount of degeneration and some necrosis and desquamation in the tubular epithelium. Cellular infiltration commences around the blood vessels near the glomeruli. Part of the cells which collect in the tissues are lymphocytes, the larger part, however, probably proliferated connective tissue cells. In the end the formation of quite a little new fibrous tissue may be the result of this proliferation. As a result of this study, Ophüls believes that the

changes in the epithelium and the connective tissue are co-ordinate, not subordinate, to one another. They are the effect of the same cause acting simultaneously on different tissues, with different vulnerability and different reaction time, so far as visible changes are concerned. This view is opposed to the doctrine of Weigert, which is the one very generally accepted. Weigert believed that the epithelium is primarily injured and that the connective tissue growth is secondary.

Ophüls in the course of his experiments found no albuminuria or cylindruria, which suggests that in man the lesions of chronic interstitial nephritis may be developing for a long time before these clinical signs become evident.

Richter [18] has shown that subcutaneous injections of small doses of uranium nitrate will produce in animals a condition analogous to nephritis in man with albuminuria, cylindruria and hydrops. The production of hydrops is absent in the experimental nephritis produced by almost all other substances so far used, though the renal lesions may be quite similar. This is true for cantharidis nephritis. Georgopulos [19] gives the following description of the renal lesions produced in rabbits by doses of uranium nitrate, fatal in four or five days. In some cases degenerative processes in the tubular epithelium are most prominent, and vary between simple cloudy swelling and complete necrosis. Many casts and desquamated epithelial cells are present. In other cases especially the glomeruli are affected and some of these deserve the designation of a glomerulo-nephritis. There is also an intertubular and periglomerular infiltration of the connective tissue.

Wallerstein [20] has studied the origin of hyaline casts in experimental nephritis. Rabbits were given subcutaneous injections of neutral ammonium chromate, cantharidin or mercury bichloride. In others the ureters were ligated. In these ways albuminuria and cylindruria were produced. Cylindruria without albuminuria was produced in dogs as the result of icterus following ligation of the common bile duct, and in rabbits as the result of artificial coprostasis following closing the anus. The animals were killed after varying periods up to four days, and tissue from the kidneys studied histologically. In the urine of these animals epithelial casts preceded hyaline casts. In the kidney, casts in process of formation could be observed, and Wallerstein concludes from his studies that both granular and hyaline casts have a common origin from epithelial cells and that hyaline casts represent an end stage.

A number of Senator's pupils have studied various phases of the pathological physiology of nephritis by the experimental method, employing chiefly uranium nitrate in the production of the nephritis. Bibergeil [21] showed the regular presence of glucose in the ascitic and pleural fluids from such animals. This glucose could not be increased by giving phloridzin or sugar. Georgopulos [22] studied the question of the relation of chloride retention to edema, but found there was no constant relation. Hydremic plethora alone did not seem a sufficient cause for the edema, but some toxic substance acting injuriously on the blood vessels must be present in order that a transudation be produced. Blanck [23] obtained further evidence of the presence of such toxic substance by producing an experimental nephritis without hydrops and then inducing hydrops by the injection of blood serum from an animal in which there was an experimental nephritis with hydrops.

With these various methods of successfully reproducing in animals the conditions found accompanying nephritis in man, it is probable that a very much better understanding of the pathology and physiology of nephritis may be obtained than we have so far gained from post-mortem and clinical studies.

POLYURIA IN CHRONIC INTERSTITIAL NEPHRITIS.

A statistical study by Nagel [24] of 45 fatal cases of chronic interstitial nephritis observed in the clinic of Quincke at Kiel is of interest, because many of these cases failed to correspond with the clinical picture described as typical of this condition. The diagnosis in all of these cases was confirmed at autopsy.

Twelve of the 45 cases were in the hospital too short a time for observations on them to be of any value. Of the remaining 33, 14 had polyuria, *i.e.*, amounts in excess of 1,500 cc. in twenty-four hours; 12 oliguria, *i.e.*, 1,000 cc. or less; 7 a normal amount, *i.e.*, 1,000 to 1,500 cc. The cases of polyuria must be further reduced by the subtraction of 4 cases in which polyuria was the result of absorption of the edema and ceased with the disappearance of edema. The specific gravity of the urine in the cases of polyuria ranged between 1,009 and 1,012. Only 4 showed a night polyuria. In 11 of the 14 cases there was a heightened blood pressure, and in all heart hypertrophy, but heart hypertrophy may be present in chronic interstitial nephritis without there being polyuria. The specific gravity of the urine in the cases of oliguria averaged 1,019.

Nagel also studied 18 non-fatal cases which gave clinical evidence of chronic interstitial nephritis. Ten of these had polyuria, 5 oliguria, and 3 were normal. Of the total of 51 cases, there was polyuria in 47%, but this figure should be reduced to 33.3% since in 7 cases the polyuria was clearly the result of the absorption of edema; 33.3% had oliguria, and 19.6% a normal secretion of urine; 72.5 % had increased blood pressure; 93.3% of the fatal cases had heart hypertrophy and 83.3% of the non-fatal showed an increased cardiac dullness. In only 25.5% was there a night polyuria observed. In all cases there was uremia.

The most striking facts in this paper are that in one third of the cases of chronic interstitial nephritis there may be oliguria with a specific gravity of 1,019, while night polyuria occurred in only one fourth the cases. With regard to this last point, a comparison with ambulatory

cases of chronic interstitial nephritis would be very interesting.

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Book Reviews.

Pulmonary Tuberculosis: Its Modern and Specialized Treatment. By Albert P. Francine, A.M., M.D., of the Staff of the Henry Phipps Institute, Philadelphia. Pp. 240 with 10 illustrations. Philadelphia and London: J. B. Lippincott Company. 1906.

This new book deals exclusively with the treatment of pulmonary tuberculosis under the following headings: Rest, Fresh Air, Exercise, Climate, Diet, Tuberculin, Serumtherapy, Drugs, Symptomatic Treatment, General Considerations, Prophylaxis. While not an exhaustive work, it is sufficiently comprehensive and detailed to serve as an excellent practical guide in home treatment. Its greatest defect lies in the absence of any account of the sanatorium care of the consumptive.

The various tuberculins and serums are very satisfactorily discussed in Chapters V and VI.

To the work are appended Dr. Minor's "Hints and Helps to Tuberculous Patients" and a brief account of the methods of study and treatment at the Phipps Institute.

Essentials of Medical Electricity. By Edward Reginald Morton, M.D., C.M., 12mo, pp. xi, 192. With 11 plates and 70 illustrations. London: Henry Kimpton. 1905.

This little book is one of a series and will prove a useful guide for the beginner in medical electricity. In the limited space at his disposal the author has not attempted to deal with all the later methods of using electricity in medical work, and has considered chiefly the employment of electricity in the better known forms for strictly medical purposes as distinguished from surgical work. He lays considerable stress upon the use of an alternating constant current for diagnostic purposes instead of the old Faradic coil. Within the limitations above mentioned the book may be recommended to the student as a clear and concise introductory manual.

Medizinische Annendungen der Elektrizität. By M. U. Dr. S. Jellinek. 8vo. Pp. xix, 458. With 149 illustrations. Munich and Berlin: R. Oldenbourg. 1906.

This volume is one of a projected series on the various uses of electricity in currents of moderate strength. If the rest of the series are like the volume before us, it is much to be commended. The present volume gives in concise form a very large amount of information in regard to the medical uses of electricity. About one third of the book is devoted to a consideration of the various forms of apparatus and devices employed in the use of electricity in medicine, and the rest of the book deals with electro-physiology, electro-diagnosis and electro-therapeutics. Few works on the subject give us so much information upon the various details, as, for example, the rarer forms of changes in the electrical reactions which, so far as we recall, are mentioned by no other writer except Cohn. The information is sometimes brief, but we know of no work which gives so varied information upon all matters pertaining to the medical use of electricity, and we would heartily recommend it to all interested in the subject.

Organic and Functional Nervous Diseases. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D. Second edition, thoroughly revised. 8vo. Pp. viii, 816. With 282 engravings in the text and 26 plates in colors and monochrome. New York and Philadelphia: Lea Brothers & Co. 1907.

The author has added to this second edition a section on functional nervous diseases, so that the work now becomes a complete treatise on diseases of the nervous system. A number of affections which are ordinarily discussed in the treatises on nervous diseases, such as the trophic disorders and diseases of the ductless glands, are omitted, as not being strictly nervous diseases. The "thorough revision" of the chapters which were included in the first edition still leaves much to be desired. Many of the typographical errors of the earlier edition remain uncorrected and the same unevenness of merit, which rendered the work unfitted for the student, still persists. As we indicated in a previous review, some of the chapters are merely an unsatisfactory repetition of the statements of the earlier textbooks, without any consideration of the recent work done on the subject, while other chapters are clear and concise expositions of the subject in hand, giving an excellent summary of recent investigations and enriched with the data

of the writer's wide clinical experience. The additions are not considerable, except a section of about eighty pages on functional nervous diseases. This section shows the same uneven merit as the rest of the book. The chapters on chorea and epilepsy are of much value, while the chapter on spasmodic neuroses shows a lamentable falling off. In this chapter, for example, the carelessness of the author or the proofreader ascribes Gilles de la Tourette's disease to Guinon. It is certainly to be regretted that the author could not have put as much care into all the chapters of the book as he has into some; then he would have given us a very excellent and useful work on nervous diseases.

The Diagnosis of Nervous Diseases. By PURVES STEWART, M.A., M.D., F.R.C.P. 8vo. Pp. xii, 380. With 2 plates and 192 illustrations. London: Edward Arnold. 1906.

It is a number of years since any manual of diagnosis of nervous diseases has appeared in English, and in that time many important methods of clinical investigation have been introduced, which have proved in some cases to be of decisive value. Dr. Stewart's new book gives us a clear account of many of these new methods which even the standard treatises on neurology in English only too often have neglected. Quinquand's sign, Oppenheim's and Gordon's reflexes, Babinski's "combined flexion," Grasset and Gaussel's phenomenon,the unilateral bulbar syndome of Babinski and Nageoth, the neurotonic electrical reaction and many other symptoms all receive their appropriate mention. The book is illustrated with many clear and excellent diagrams and representations of morbid conditions. The style is clear and scholarly. The author's statements are based on careful study of books and patients. It is an excellent manual for the student and physician. Although the somewhat limited compass of the work compels the author to touch rather superficially upon many topics, nevertheless, it contains enough to enable the physician to make a reasonably thorough and intelligent examination of a patient and to arrive at a correct diagnosis. The arrangement of the book is a little unsatisfactory. After a short sketch of the functions of the nervous system, the writer follows a scheme for examination which begins by a consideration of mental states, aphasia and other speech disturbances, and toward the close of the work deals with the simpler question of reflexes, sensation and motion. Each cranial nerve is considered by itself, and, finally, a chapter on hysteria is interpolated somewhat incongruously. For the student we believe the physiological method, proceeding from the simple to the complex, and grouping symptoms according to their effects upon function is of greater value than to adhere strictly to the convenient routine of a clinical examination. Such a criticism, however, detracts nothing from the value of the work, which is a welcome addition to our diagnostic aids.

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SOCIAL WORK AT THE MASSACHUSETTS GENERAL HOSPITAL.

AN interesting experiment in social work, in direct relation with the medical problems which an out-patient department presents, has been carried on at the Massachusetts General Hospital for upwards of a year. The plan was developed by Dr. Richard C. Cabot, and it is largely through his energy and that of a band of workers which he has collected that the work thus far has been successfully prosecuted, making possible the first annual report, which is now in our hands.

Dr. Cabot himself writes this report, and the necessity of the work which it represents is perhaps best indicated by his own words in the opening paragraph:

"In the Out-Patient Department of the Massachusetts General Hospital (and I suppose in most other hospitals) there occurs many times each year a scene not unlike that described in 'Alice in Wonderland';

"'"Have some wine," said the Hatter.

"'"I don't see any wine," said Alice.

"'"There isn't any," said the Hatter.'

"Without any sense of the humor and pathos of the situation we say (in substance) to many patients: 'Take a vacation,' or 'Get a job,' 'Get a set of teeth,' or 'Get a truss.' There is none in sight and no means of getting any. What do we do then? We pass cheerfully to the next patient."

This gap it is the design of this department of the hospital work to fill, recognizing the fact that modern medical treatment nowadays goes far beyond the somewhat restricted limits to which it was confined not many years ago and demands a study of the patient from every point of view,

social and mental, as well as physical. With this end in view the plan of work was begun in the simplest possible way, has demonstrated its usefulness and has gradually developed to such an extent that it now demands the time of upwards of a dozen workers, irrespective of the suburban tuberculosis class, also conducted at the Massachusetts General Hospital, which is essentially a part of the same general work.

Thus far the work has been divided into the following main divisions: tuberculosis, with special attention to the proper disposition of cases; hygiene teaching; infant feeding and the care of delicate children, with demonstrations and directions to mothers; vacations and country outings; the care of unmarried girls, pregnant, morally exposed or feeble-minded; help for patients needing work or a change of work; provision for patients sent to the hospital, and assistance to patients needing treatment after discharge from the hospital wards. Each of these special branches of the work was suggested by particular cases, and many others have already and will continue, no doubt, in the future to suggest themselves as the scope of the work widens.

The work in tuberculosis, here as elsewhere, has already attained wide proportions, and has extended to many suburban towns. The report of this work is given by Drs. John B. Hawes, 2d, and Cleaveland Floyd in a separate pamphlet under the heading, "First Annual Report of the Suburban Tuberculosis Class Conducted at the Massachusetts General Hospital." This is an admirable exposition of what may be done and of the best methods of procedure. It should have wide circulation. In each of the other divisions of the work to which we have alluded good progress has been made. Patients have been carefully followed, their real needs ascertained, and the best means of supplying those needs determined. This indirectly brings the hospital into closer relationship with other charitable institutions having, as a common aim, the relief of suffering and the alleviation of the conditions of life. At the end of the general pamphlet is detailed a large number of hospitals, general and special, nursing associations, homes, various relief associations, employment agencies, settlements and other institutions of a charitable sort. It is certainly well that physicians in general should know of these possibilities of relief, not only in their capacity as hospital physicians, but also in relation to their personal work.

There seems small reason to doubt that this work, auspiciously begun, with a record up to Oct. 1, 1906, of 684 cases investigated, will continue to develop in the future and ultimately, we hope, become an integral part of the hospital organization. As a rational means of meeting the problems, which a great out-patient service presents, it certainly should take its place among the many remedial agencies which the modern hospital is expected to supply.

THE MILK SITUATION IN NEW YORK.

There is at present much agitation of the pure milk question in New York and the proposed compulsory pasteurization of the city's supply as bills demanding the latter measure have been introduced not only in the Board of Aldermen, but also in the legislature at Albany. On March 12, the meeting of the Section on Public Health of the New York Academy of Medicine was devoted to the subject, when papers were read on "Milk as a Carrier of Infection," by Dr. Charles Harrington, of Boston, "The Advantages and Disadvantages of Pasteurization to the Consumer," by Dr. Rowland G. Freeman, "Advantages and Disadvantages to the Municipality," by Dr. Joseph Roby, Deputy Health Officer of Rochester, N. Y., and "Current Misstatements and Fallacies regarding the Milk and Milk Supply of New York City," by Dr. William H. Park.

Dr. Roby strongly condemned commercial pasteurization, in which the milk was raised for a few seconds only to a temperature of 150° to 170° F., and stated that in Rochester the rigid inspection of the sources of supply had proved a much more efficient means for securing milk. Dr. Freeman contended that the main effect of commercial pasteurization was to keep "dirty" milk from souring on the dealer's hands, and that even real pasteurization, in which the high temperature was maintained for a sufficient time in order to be effective, must be practised just before the milk is to be consumed. At the same time, he did not think that the excellent results obtained in Rochester from the use of raw milk carefully inspected could be expected in New York, for the reason that Rochester was a city of but 156,000 population, deriving its milk supply from a restricted territory and using it within twenty-four hours, while in the case of the immensely larger city of New York, the supply necessarily came from a very wide territory and, as regards much the greater part of it, from forty-eight to seventy-two hours elapsed before

the milk was used. Dr. Park expressed the opinion that most of the scarlet fever among children came from direct contagion in school, and inasmuch as diphtheria was prevalent principally in the winter, at a time when the diphtheria bacillus would not develop in milk kept at the average temperature, he did not attribute a large amount of this disease to infected milk. As regards tuberculosis, he said that while it was true that perhaps 10% of the cattle of the state were the subjects of tuberculous disease in one form or another, not 1% of these had udder tuberculosis, from which alone, as had been shown, the milk could be seriously infected.

In the discussion which followed the reading of the papers, Dr. L. Emmett Holt emphasized the fact that the city certainly could not wipe out all contagious diseases by the remedy proposed for the milk supply. In concluding his remarks he said, "As a matter of fact, hardly a baby in New York is now fed raw milk from the bottle. The mother pasteurizes the milk at home, the proper place to do it. All the mothers in the tenements know how. I tried recently for a certain demonstration to find some babies in tenement families whose milk had not been properly heated before feeding, and I had to give up the job."

In the meanwhile, the City Board of Health has continued active in its efforts to improve the character of the milk supply and, at its regular meeting on March 13, passed an additional series of regulations on the subject. One of these requires that on Monday of each week, every creamery or milk station shipping milk or cream to New York shall furnish to the Health Department a report stating the existence or non-existence of any one of the following diseases in the households of persons employed in the collection or handling of milk, either at the creamery or at the farms or dairies supplying it: typhoid fever, tuberculosis, scarlet fever, diphtheria, dysentery or any other infectious disease. Another regulation requires the farmers and dairymen to make similar reports to the creameries every Saturday; and a third demands the exclusion from the handling of milk of any employee in whose family such disease develops until such time as a licensed physician certifies that there is no longer danger of carrying the infection. Included also in the regulations is one requiring that when typhoid fever or dysentry exists in the household of any employee, no water from any well or spring within 100 feet of a dairy shall be used in the barns or for cleaning milk utensils without the consent of the New York Health Department. Failure to comply with any of these rules is to be regarded as sufficient cause for excluding from the city the milk or cream of the offending station or creamery.

PROFESSOR MULLER'S VISIT.

THE Harvey Society and the Herter Lectureship Foundation have made us all their debtors, both by calling forth such excellent papers by our own countrymen, as well as by the influence they have exerted toward bringing so many men notable in medicine to the United States. Unfortunately, up to this time we in Boston have missed the opportunity of hearing many of these speakers. It is therefore with more than ordinary satisfaction that we call the attention of our readers to the meeting at the Medical Library on Wednesday, March 27, which is to be addressed by Prof. Friedrich Müller, of Munich.

Professor Müller stands for all that is best today in German clinical medicine, and the hospital and clinic of which he is the head are unsurpassed. It is refreshing to follow his career, because it so well exemplifies the system that has given Germany her leadership in this department of education. Born in Augsburg in 1858, he grew up in a medical atmosphere, as his father was the chief physician at the City Hospital. He was graduated at Munich in 1882, where he worked with Carl Voit, becoming Gerhardt's assistant in Würzburg a year later. When in 1885, Gerhardt was called to Berlin, Müller accompanied him and served as his assistant in the Second Medical Clinic at the Charité until 1889. He was then promoted to an Assistant Professorship (Extraordinary Professor,— our translation is not quite correct) at Bonn, only to be transferred a year later to Breslau, where in 1892 he became full professor and again moved on to Marburg for a stay of seven years. After a short term in Basel he was again promoted and accepted at his alma mater the professorship in Medicine left vacant by Ziemmsen.

Müller's researches have been as diversified as his homes, yet they have never wandered from the end in view. This is well illustrated by his work on sputum, which was begun in 1884 and carried on as opportunity offered until 1901. Only a fixed purpose and expert chemical training could have demonstrated an amido-carbohydrate group in mucin, and have recognized it as glucosamine, thus joining with Kossel and Fischer in the unravelling of the albumin molecule.

By his work on jaundice, cancer cachexia, the starving Cetti, and the various pathological aspects of digestion, he showed his appreciation of the need of study of that type of disease which attacks the last as well as the first half of life. As Professor Welch so ably pointed out at the dinner given in Professor Müller's honor in New York, the lengthening of life in the last century has been due to our better knowledge of those diseases which principally attack the young. Müller's articles on aphasia alone would give him a place with the leading neurologists. But his broad conception of medicine and the field of study it affords is best seen in his clinic, where he stimulates his associates and teaches his students to seek as far as possible themselves for the cause of disease before calling in the specialist.

With "Medicine and the Laboratories" as his toast, Professor Welch could well refer to Friedrich Müller as a worthy exponent of that modern clinical medicine which has brought the laboratory into the ward and made medicine more of a science, yet no less of an art. We hope the day is not far distant, when in the exchange of college professors between the German government and Harvard Unversity, Boston may repay New York for the privilege of knowing Professor Müller.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, March 13, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 51, typhoid fever 7, measles 15, tuberculosis 48, smallpox 0.

The death-rate of the reported deaths for the week ending March 13, 1907, was 22.86.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, March 16, 1907, was 265, against 224 the corresponding week of last year, showing an increase of 41 deaths and making the death-rate for the week 22.95. Of this number 134 were males and 131 were females; 258 were white and 7 colored; 143 were born in the United States, 112 in foreign countries and 10 unknown; 38 were of American parentage, 191 of foreign parentage and 36 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 48 cases and 2 deaths; scarlatina, 56 cases and 0 deaths; typhoid fever, 9 cases and 0 deaths; measles, 18 cases and 0 deaths; tuberculosis, 58 cases and 33 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 41, whooping cough 1, heart disease 28, bronchitis 8 and marasmus 3. There were 15 deaths from violent causes. The number of children who died under one year was 32; the number under five years 47. The number of persons who died over sixty years of age was 75. The deaths in public institutions were 84.

There were 9 cases and 3 deaths reported from cerebrospinal meningitis during the week.

Bequests. — By the will of the late Gen. Samuel E. Merwin, the New Haven General Hospital received $25,000 and the Yale Medical School $5,000.

Massachusetts General Hospital House Pupils Alumni Association. — The second annual dinner of the Massachusetts General Hospital House Pupils Alumni Association, was held on the evening of March 16, at the Hotel Vendomé, Boston. Dr. James C. White, president for the year, presided, and Dr. Charles Harrington acted as toastmaster. Speeches were made by Drs. J. C. Warren, Abner Post, and Dudley P. Allen, of Cleveland. Dr. George L. Walton read a poem, and the proceedings were further enlivened by songs. Dr. C. Ellery Stedman was elected president for the ensuing year.

A Test Case in Relation to Vaccination. — For the last five years a case has been in litigation between the town of Hyde Park, Mass., and certain plaintiffs regarding the legality of excluding a minor from the public schools because of failure to comply with the school committee's regulations for vaccination. After passing through various courts a decision has finally been reached in the Supreme Judicial Court of Massachusetts for the defendant. This decision will be regarded with favor, both by those who believe in vaccination as a prophylactic measure, and also by those who desire to see law and order upheld.

Henry Francis Sears Fund for Pathology. — At a meeting of the President and Fellows of Harvard College it has recently been voted that

"*Whereas*, The Sears Pathological Laboratory has passed from the possession of the University with the Medical School building at the corner of Boylston and Exeter Streets, to which it was attached, that there be set aside as a permanent memorial from the fund created by the sale of that building, the sum of $35,000, the income of which

shall be applied to the current expenses of the Department of Pathology, and the principal of which shall forever be preserved and recorded as the Henry Francis Sears Fund for Pathology."

NEW LABORATORY OF THE CARNEGIE INSTITUTE. — It is announced that the new laboratory of the Carnegie Institute, to be devoted to the study of the nutritive value of foods, will be erected on lands adjoining the new buildings of the Harvard Medical School in Boston. It is furthermore announced that the architects of this building are those who designed the medical buildings, which is matter for congratulation, since it insures harmony of design so far as the exigencies of building with other material will permit.

REPORT OF THE BUTLER HOSPITAL. — The report of the Board of Trustees and of the Physician and Superintendent of the Butler Hospital, at Providence, R. I., impresses one with the continued admirable and progressive work which is being done at this institution. One hundred and four patients were admitted during the year under consideration, and the total number under treatment was two hundred and sixty-seven. It is interesting to note that the percentage of voluntary admissions was upwards of 40%, and that of those discharged 19 were classified as recovered, 51 as improved, and only 27 as unimproved or dead. We cannot forbear to allude to the admirable literary style in which the yearly reports from this hospital are written.

INTERNATIONAL EXPOSITION OF SAFETY DEVICES AND INDUSTRIAL HYGIENE. — We have recently commented on the exhibit of industrial conditions to be held in Boston the week of April 8. To this exhibition is to be added a unique collection including a great variety of protective devices and health conservers, from marine distress outfits and machinery guards to ideal workmen's dwellings, showing the steady progress in the prevention of casualties in civilized countries. Protection is illustrated for those who travel by street car, railroad or on the sea, and especially for workers of all classes.

"The appalling list of railway and steamship disasters within the past few months," said a prominent Harvard sociologist recently, "makes this exhibit most timely. The fact that 500,000 men, women and children in the United States — one half our total annual immigration — are killed or crippled every year as a direct result of the occupations in which they are engaged, is rendered the more frightful when we consider that more than half of it is needless."

LABORATORY OF SURGICAL RESEARCH, HARVARD MEDICAL SCHOOL. — A laboratory of surgical research has been established by the Division of Surgery at the Harvard Medical School. The laboratory is in Building E, Room 309, adjacent to the Surgical Library, the secretary's room, and the rooms assigned to the Professor of Surgery.

Opportunity to work in this laboratory on problems in surgical research may be secured by members of the teaching staff of Harvard University, and by other qualified persons registered as special students in the Medical School.

Applications to work in the laboratory should be made in writing to Dr. J. C. Warren. Applicants should state the nature and purpose of the work to be undertaken, an estimate of the expenses of the research, and the time necessary for its completion. If an appropriation is desired to meet the expenses of the investigation, a request for such an appropriation should be made for a given amount, to be expended before a specified time.

Results of research work performed in the laboratory shall not be published without the approval of the Division of Surgery, and, when published they shall appear as "From the Laboratory of Surgical Research of Harvard University," and shall be available for publication in the *Bulletin of the Division of Surgery*.

For further information, application may be made to Dr. J. C. Warren, 58 Beacon Street, Boston.

The laboratory will be open daily from 9 to 12 and 2 to 5, and at other hours by special arrangement.

NEW YORK.

DEATH OF WILLIAM JOHNSON. — William Johnson, the oldest resident of Canarsie, Borough of Queens, N. Y., died on Feb. 23, at the age of nearly one hundred, having been born on Dec. 27, 1809. He was a native of Rahway, N. J., and at the time of his death had 166 descendants, including 9 children, 60 grandchildren, 90 great-grandchildren, and 7 great-great-grandchildren. It is an interesting fact in his life that he caused the arrest in 1831 of Gibbs and Wansley, the last pirates hanged in New York. In 1830 and the first part of the following year the police of New York were baffled by a

gang of pirates, headed by these men, who infested the harbor and adjacent waters and committed many murders. On information furnished by Johnson, who, at that time had a fishing shack on Barren Island, Gibbs and Wansley were arrested and convicted of the murder of the captain and mate of the brig Vineyard, and on April 23, 1831, they were hanged on Bedlow's Island, where the Bartholdi statue of Liberty now stands.

Report of New York State Hospital for Incipient Tuberculosis. — The report of the board of trustees of the New York State Hospital for Incipient Tuberculosis, situated at Ray Brook in the Adirondacks, which has just been submitted to the legislature, shows the very gratifying result that out of a total of 114 patients admitted with incipient tuberculosis, 96, or more than 84%, were recorded as "apparently recovered" after an average stay of about six months.

Opening of Anna Ottendorfer Dispensary. — Governor Hughes was the principal speaker at the exercises attending the opening of the new Anna Ottendorfer Dispensary of the German Hospital, at 76th Street and Park Avenue, on March 16, and during the ceremonies Mrs. Anna Woerishoffer, the daughter of the late Mrs. Ottendorfer, after whom the dispensary is named, was presented with a gold medal by the physicians connected with the institution, in recognition of her generosity. The handsome new dispensary building, which is spacious and completely equipped for its purposes, adjoins the buildings of the German Hospital, which occupy the northern portion of the block. Many years ago the old German Dispensary, on lower Second Avenue, was established and endowed by Mrs. Ottendorfer, the wife of the proprietor of the *Staats Zeitung*, and some time since it was transferred to the management of the directors of the German Hospital. After the sale of the Second Avenue property, Mrs. Woerishoffer added a large amount to the proceeds for the erection and maintenance of the new up-town dispensary. This lady is also known as one of the principal benefactors of the New York Academy of Medicine and it was in part owing to her generous gifts that the latter was enabled to erect its present commodious building.

Public Health Defense League. — The Public Health Defense League, a body which resulted from the conference of physicians and others interested in opposing conditions dangerous to the public health and morals held in New York in November last, was incorporated in Albany on March 15, and among the directors named in the charter are Drs. Thomas Darlington and Ernst J. Lederle, of New York, Robert E. Belcher, of Boston, and Henry W. Cattell of Philadelphia. It has for its object the suppression of quacks and quackery and of the sale of dangerous nostrums, particularly those containing alcohol and narcotics.

Beth Israel Hospital. — At the large Purim ball which was given at the Madison Square Garden on March 13, and which was attended by Governor Hughes and his military staff, it is estimated that about $20,000 was netted for the Beth Israel Hospital.

Report of Hospital for Crippled and Deformed Children. — In the sixth annual report of the State Hospital for Crippled and Deformed Children, which has just been transmitted to the State Board of Charities, Dr. Newton M. Shaffer, surgeon-in-chief, urges the necessity for the erection of new buildings for the institution. This is located at West Havertraw, Rockland County, and the situation, Dr. Shaffer believes, is all that could be desired. He contends that for the successful treatment of bone tuberculosis an inland location is decidedly preferable to the seashore, and recommends a dry, though not a high, altitude.

Official Statistics for 1906. — The official statistics of the city for the year 1906 have just been issued by the Health Department. The total number of deaths reported was 76,203 and the total number of births 111,772. The death-rate for the entire city was 18.35 and for the several boroughs as follows: Manhattan, 18.32; The Bronx, 21.64; Brooklyn, 17.82; Queens, 17.09, Richmond, 20.06. It will thus be seen that the rate in Manhattan, with its enormous tenement-house population, was about the same as the general rate for the city. The comparatively high mortality in the Bronx is explained by the many large institutions in that borough. It is a little difficult to understand, however, why the rate should be so high in the Borough of Richmond, comprising the whole of Staten Island, which has a rather sparse population and an extended frontage on salt water.

Quarterly Report of Death-Rate. — The condensed quarterly report of the Bureau of Records of the Health Department for the quarter

ending Dec. 31, 1906, shows that the death-rate was 17.14, as against an average of 17.02 for the corresponding quarters of the preceding five years, an increase of .12 of a point. Comparing the number of deaths from the principal causes with those of the preceding quinquennial averages corrected to correspond with the increase of population, the following decreases are found: typhoid fever, 15; malarial fevers, 11; smallpox, 8; measles, 53; scarlet fever, 52; diphtheria and croup, 109; apoplexy, 15; acute bronchitis, 170; lobar pneumonia, 289; Bright's disease and acute nephritis, 51; suicides, 29; under five years of age, 179. Those showing increases were, whooping-cough, 54; influenza, 1; pulmonary tuberculosis, 49; other tuberculous diseases, 10; cancer, 57; cerebro-spinal meningitis, 7; organic heart diseases, 141; broncho-pneumonia, 252; diarrheal diseases under five years, 115; accident, 133; homicide, 23; under one year, 162; from five to sixty-five years, 101; sixty-five years and over, 209.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, MARCH 2, 1907.

1. BROWN, P. K. *Coccidioidal Granuloma.*
2. *SCHAMBERG, J. F. *Herpes Simplex and Its Diagnostic and Prognostic Significance.*
3. ZENTMAYER, W. *Some Unusual Ocular Manifestations of Arteriosclerosis.*
4. *BROWN, G. V. I. *Conservatism in the Treatment of Harelip and Cleft Palate.*
5. POWERS, C. A. *The Ischemic Paralysis and Contracture of Volkmann.*
6. *MURPHY, J. B. *Surgery of the Spinal Cord.*
7. *ROCHESTER, D. *A Case of Colon Bacillus Septicemia.*
8. *FALES, L. H. *Beriberi.*
9. SHIMER, I. A. *Beriberi on the Isthmus of Panama.*
10. KUYK, D. A. *Method for the Reduction of the Inferior Turbinate.*
11. HITZROT. *Cellulitis and Myositis of the Abdominal Wall Simulating Intra-Abdominal Conditions.*
12. WOOLLEY, P. G. *Some Tropical Cutaneous Ulcerative Conditions.*

2. Schamberg holds that herpes simplex and herpes zoster, while not clinically identical, are closely related; the histology of the cutaneous lesions and the observed nerve changes are practically the same in both. Both are due to a variety of causes, but he thinks that the vast majority of all cases are due to the action of a toxin, and this, of course, presupposes an infectious origin. The frequency of herpes simplex in certain diseases and its rarity in others suggest strongly that the toxin must have peculiar qualities to exercise such a selective affinity for sensory nerve structures. He holds, however, that this toxin cannot be the result of the action of any specific organism in the case of herpes simplex and by analogy not in zoster. The three diseases in which herpes occurs most frequently and in which it is therefore of diagnostic importance, are pneumonia, spotted fever and malaria. Schamberg does not commit himself as to its favorable prognostic significance in pneumonia, of which there is considerable evidence, but he does not credit it in spotted fever nor in malaria in this country. The liability of some persons to recurring attacks of herpes must be taken into account in estimating the diagnostic importance of its occurrence.

4. Brown disbelieves in the early operative treatment of harelip and cleft palate in infants, holding that the children thus deformed are apt to be otherwise defective and therefore less resistant to injury or disease than they will be at a little later period of life. Very early operation is, moreover, liable to affect injuriously the normal development of the other facial bones and to cause nasal stenosis, and is not more favorable to insuring better speech than are the later operations. The difficulty of taking nourishment can be met as well by the use of strips as by early operation and he would use these and change them from day to day, always endeavoring to increase the tension as tolerance is acquired. He advises beginning operative treatment at about four months, after the child has gained weight steadily and seems to be in good condition. He lays special stress upon preparatory treatment of the child's general condition before anything else is done. Operation in a number of sittings is advocated, closing first the lip, leaving the palate until later, even to the eighteenth month. A number of special precautions to be observed are briefly mentioned.

6. The surgical diseases and lesions of the spinal cord, contusions, concussions, punctured wounds, hemorrhage, fractures and dislocations, gunshot wounds, spina bifida, syringomyelia, etc., and their management, are reviewed by Murphy. He holds that when the axons and ganglion cells that make up the substance of the cord above the cauda are destroyed, regeneration is impossible and, therefore, in gunshot or stab wounds with immediate paralysis, operation is useless as regards hope of repair, except in the caudal zone, where the possibilities are the same as in the case of wounds of peripheral nerves. Hemorrhage, concussion and contusion without laceration may give rise to the same immediate symptoms as division, and a positive differential diagnosis is impracticable. The time and order of appearance of symptoms may be the only guides; there is no direct relation between the severity of the trauma and the degree of injury to the cord. Absence of immediate paralytic symptoms is not a guide; they may appear after days or weeks. Early spinal puncture may relieve paralysis due to hemorrhage which in some cases may be as complete as that due to division of the cord. Most patients with incomplete paralysis following fractures recover without operation, and when the displacement is not great the physician is justified in assuming that the cord is not suffering continuous compression and in refraining from operation. The special indications as regards operation in the various conditions above enumerated are pointed out and the technic of laminectomy is described. The danger of delay in conditions calling for operation, especially in non-malignant tumor, tuberculoma, etc., is emphasized. Late operations after necrosis in the cord has taken place are worthless. Surgery of the spinal cord, like surgery elsewhere, must be timely, i.e., before the pathologic condition has passed the possibility of repair.

7. Rochester reports a case, with autopsy, in which cultures from the tissues, as well as of the blood during life, contained organisms at first suspected of being paratyphoid, but later developed the characteristics of the colon bacillus. The symptoms, temperature curve, sweats, splenic enlargement, anemia and leucopenia, strongly suggested malaria of the estivo-autumnal type, and the blood was examined for the plasmodium, and quinin was given, but without effect. The patient succumbed finally after a severe hemorrhage from the gums, against which the local use of adrenalin had very little effect. No pain was complained of by the patient at any time during his illness and no tenderness except to a slight extent over the liver.

8. Fales describes the disease beriberi as it usually appears, noticing briefly the serious character the disorder assumes in tropical regions and critically discussing the diverse theories that have been offered of the nature of the disease. He gives a history of the epidemic of beriberi in 1901-02 in the Bilibid prison in Manila, the beginning and ending of which were coincident with changes in the prison ration, while sanitary measures and disinfection were without effect on the progress of the epidemic. A study of the dietetic tables given suggests two theories of the cause,—(1), that nitrogen starvation, as claimed by Kakaki, is the cause of the disease; (2), that beriberi falls into the same category as scurvy, being due to a deficiency in vegetables

in the diet. Certain facts in the history of the Bilibid epidemic favor the vegetable deficiency theory. Individuals who had an opportunity to take more than their share of vegetables (kitchen workers) were exempt; the epidemic was at its worst when, for fear of cholera, the vegetable ration was restricted, the later occurrence of beriberi among prisoners employed in road building on a diet without vegetables and the simultaneous occurrence with the beriberi epidemic of cases of scurvy among the prisoners. With a too exclusively rice diet which seems to favor the occurrence of beriberi, there is a deficiency of the potash salts which would also favor the occurrence of scurvy. Fales does not combat the theory that beriberi is due to an infection, but thinks that both it and scurvy may be due to a condition produced by a lack of potash salts, causing the organism to be particularly susceptible to certain forms of infection.

THE JOURNAL OF EXPERIMENTAL MEDICINE.
DEC. 21, 1906.

1. *SIMON, C. E., ET AL. *Contribution to the Study of the Opsonins.*
2. *WOLLSTEIN, M. *The Influenza Bacillus in Inflammation of the Respiratory Tract in Infants.*
3. MELTZER, S. J., and AUER, J. *Intraspinal Injection of Magnesium Salts in Tetanus.*
4. JOBLING, J. W. *Specific Immunity Principles in the Blood of Vaccinated Calves.*
5. *CRILE, G., and DOLLEY, D. H. *The Resuscitation of Dogs Killed by Anesthetics and Asphyxia.*
6. NOGUCHI, H. *Thermostabile Anticomplementary Constituents of the Blood.*

1. Simon reviews Wright's method of determining the opsonic power of sera by counting the number of bacteria percorpuscle after serum, bacterial emulsion and washed leukocytes have been incubated together. This method is open to several objections. It does not measure the effect of various dilutions of serum; the bacteria are hard to count; the bacterial emulsions are of different concentrations and may be to some extent agglutinated by the serum. Simon believes that more significant results can be obtained by his own method in which several dilutions of serum are used and the percentage of leucocytes showing phagocytosis, without reference to the number of bacteria per corpuscle, is the result recorded. Various observations as to the occurrence of opsonins have been made, showing that they are more active in higher than in lower animals, that they vary in individuals of the same species of animal, as well as in healthy human adults. A rise of values occurred an hour after meals. Breast-fed babies showed exceptionally high readings. Investigations of various body tissues showed that opsonins are essentially components of the blood. Chemically they seem to belong to the group of the euglobulins. Finally the question is discussed as to whether the opsonins are specific for the different varieties of bacteria. Various observations, particularly a rise of opsonic power for staphylococci following injections of tuberculin, leads Simon to the conclusion that specificity of opsonins does not exist.

2. Wollstein has examined the throats and bronchial mucus of 229 infants for the presence of influenza bacilli. The results seem to show that the influenza bacillus is not found in the throats of children in whom lesions of the respiratory tract do not exist. They occurred in 17 out of 61 cases of pneumonia, in 11 out of 45 cases of bronchitis, 8 out of 26 of measles, 8 out of 24 of tuberculosis. When they were present the clinical course of the disease which they complicated was apparently influenced by them for the worse.

5. Crile and Dolley refer to the former's previous article upon resuscitation by heart massage, artificial respiration and saline infusion with or without adrenalin, and suggest a new method of giving the adrenalin infusion. Since the drug to have its principal effect must act upon the arteries, they conceived the idea of giving the adrenalin infusion through arteries, directing the current backward toward the heart so as to reach the coronary arteries. Their experiments include 60 observations upon animals. Animals after death from chloroform, ether or asphyxia, up to five minutes, were uniformly and readily resuscitated; up to ten minutes there was an occasional failure; beyond ten minutes consciousness was rarely restored. Resuscitation in the majority of successful cases occurred within one minute after the administration of adrenalin.

THE LANCET.
FEB. 23, 1907.

1. BUTLIN, H. T. *The Hunterian Oration on the Objects of Hunter's Life and the Manner in which he Accomplished them.*
2. *ROGERS, L. *The Milroy Lectures on Kala-azar, Its Differentiation and its Epidemiology.*
3. BEEVOR, C. E. *The Diagnosis and Localization of Cerebral Tumors.*
4. *MALCOLM, J. D. *On the Condition of the Blood Vessels during Shock.*
5. *BARR, J., BELL, W. B., and DOUGLAS, S. P. *A Case of Infective Endocarditis Cured by the Inoculation of a Vaccine Prepared from Organisms Found in the Patient's Blood, the Inoculations being Regulated by the Examination of Opsonic Power of the Patient's Serum.*
6. *GROVES, E. W. H. *A New Method of Fixation of the Bones in Excision of the Knee.*
7. PHILLIPS, S. *Some Affections of the Pancreas.*
8. LAKE, R. *A Preliminary Note on Rinné's Test.*
9. MADDEN, F. C. *Cellulitis of the Spermatic Cord.*
10. CULLINGWORTH, C. J. *The Obstetrical Society of London and its Examination for Midwives.*
11. CAMPBELL, H. *The Role of the Blood Plasma in Disease.*

2. Kala-azar is a fever endemic in parts of India, which for the past thirty years has been spreading throughout the country, especially up the Assam valley. It is characterized by persistent intermittent and remittent fever, commonly mistaken for typhoid, but leading to great cachexia, extreme enlargement of liver and spleen with a mortality of 75% to 98%. It is constantly associated with a minute protozoal organism, the "Leishman-Donovan body," which is probably its cause. The greater part of this lecture is a detailed account of the epidemic itself, its spread and gradual decrease.

4. This is an argument against Crile's theory that in the state of shock the blood vessels are paralyzed throughout the body and that this is due to "an exhaustion or breakdown of the vaso-motor centers." Malcolm believes that the vessels are intensely contracted during shock and that this theory offers a full solution of all the questions not to be explained under Crile's theory. The conclusion that the vascular system is relaxed in shock, if it is founded on the single fact that the blood pressure is lowered, may be erroneous. As to treatment he believes in strychnia and warmth, that if salt solution is used it should be injected into the cellular tissues and not into a vein and that adrenalin, although it may be beneficial, is attended with considerable risk. The most important treatment is preventive.

5. The writers report this interesting case of endocarditis in detail. Anti-streptococcic serum was used for a considerable time with no benefit. After many negative results a pure culture of streptococcus was isolated from the patient's blood; from this organism a vaccine was prepared. After an inoculation of 10,000,000 dead streptococci the index rose to above normal, and the temperature fell for the first time. Nine inoculations in all were made during the month of March, and at the end of this time the patient's temperature fell to normal, albumin disappeared from the urine, and the heart, except for the damaged valve, returned to a normal compensated condition.

6. Groves describes a new method of knee excision, which, by means of a mortise joint instead of the old end-to-end apposition, brings about a far better union.

BRITISH MEDICAL JOURNAL.
FEB. 23, 1907.

1. PARSONS, J. H. *The Treatment of Lacrymal Obstruction.*
2. EVANS, J. J. *The Lacrymal Sac in the Economy of Vision.*

3. *BROCKBANK, E. M. *Merycism or Rumination in Man.*
4. ROGERS, L. *On Kala-azar.*
5. DARLING, J. S. *A Case of Cerebrospinal Meningitis, with Observations on a Pleomorphic Diplococcus Obtained by Lumbar Puncture.*

3. Rumination in man consists as in animals in the return of the food from the stomach into the mouth, where it is chewed and swallowed again. Brockbank reports a family consisting of father and six children, all of whom are ruminants. After a meal the food is regurgitated at frequent intervals, chewed and swallowed again. If the food is not chewed after regurgitation, dyspepsia is the result. There is evidence that rumination had occurred in five generations of this family. Rumination is probably a neurosis; the general health is usually good and the gastric secretions normal. Other gastric disturbances may be lacking.

THE EDINBURGH MEDICAL JOURNAL.
FEBRUARY, 1907.

1. *THOMPSON, H. P. *The Prophylaxis of Scarlatinal Nephritis: Observations on 300 Cases of Scarlatina Treated with Urotropine, Heramethylene-tetramine and Metramine.*
2. MUMMERY, P. L. *The Diagnosis of Rectal Cancer.*
3. SMITH, P. C. *Degeneracy.*
4. *CAMMIDGE, P. J. *The So-called "Pancreatic Reaction" in the Urine.*
5. MORISON, R. *Major Abdominal and Pelvic Operations.*

1. Thompson believes that scarlatinal nephritis is due to an irritation of the kidney caused by the organism of scarlatina itself, or by its toxins; that it may be caused by a secondary streptococcus infection with a much lowered resistance in the kidneys, or that the exciting cause may be one or a combination of all of the above-mentioned factors. In prophylaxis milk diet is important; hydrotherapy is used, especially in Germany. Serotherapy is as yet unsatisfactory. Urinary antiseptics are coming into vogue and seem to play a definite rôle in warding off nephritis. He describes his experience with urotropine and the two others above mentioned. In 5-gr. doses three times daily no untoward effects were found in 133 children. Urotropine alone seemed to be of definite value in preventing nephritis; the other drugs, while certainly doing no harm, did not lower the percentage of nephritis.

4. Cammidge, in this paper, asserts that his so-called pancreatic reaction in the urine is of definite value if done according to his new and modified technique. His paper is largely in answer to one of Holdane's in the November issue of this *Journal*. [Cammidge's figures and statements supporting his test are not conclusive.]

THE PRACTITIONER.
FEBRUARY, 1907.

1. LUFF, A. P. *The Treatment of Some of the Forms of Gout.*
2. *YOUNG, A. *Posterior Tarsal Resection of the Foot by the Method of Mikulicz and Wladimiroff with Report of a Case, and Remarks on the Operative Technique, and the Applicability of the Procedure.*
3. CRAWFORD, R. *Valvular Disease of the Heart. Tricuspid Stenosis.*
4. BISHOP, E. S. *Postpartum Hemorrhage.*
5. LEWIS, T. *The Interpretation of Sphygmograph Tracings and of Tracings Produced by Compressing the Brachial Artery. The Factors which are Involved in the Production of Anacrotism.*
6. *WYLLIE, J. *Intra-cranial Abscess: When, and When Not to Operate.*
7. WELLMAN, F. C. *On the Possibility of Two West African Diseases (Akatma and Vonulo), Being Malarial Paroxysmal Neuroses.*
8. TUBBY, A. H. *Orthopedic Surgery.*
9. BATE, G. H. *The Relative Value and the Selection of Disinfectants.*

2. Young gives in detail the report of a case of extensive tuberculosis of the bones of the foot in which he did an operation modified from the one Mikulicz advised. He got a most satisfactory result. He discusses Mikulicz' operation and the cases reported in the literature in which this operation, modified or not, was used. The paper seems to be a thorough and careful review of this subject.

6. Wyllie says that there are three stages in the course of a cerebral abscess: (1) that of irritation with all that that implies; (2) that of pressure, and (3) pressure plus toxemia. The second stage, always short, lasting from a few hours to a few days, is the best time to operate. If operative procedures are delayed till the last stage there is little hope for recovery; in the first stage exact localization can rarely be obtained.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, NO. 8.
FEB. 21, 1907.

1. NEUMANN. *The Carrying Out of Breast Feeding.*
2. KRUSE. *New Investigations on Dysentery.* (Continued article.)
3. KNAUTH. *Cerebrospinal Meningitis in the Bavarian Army.*
4. BREINL, A., and KINGHORN, A. *The Action of Atoxyl in African Relapsing Fever.*
5. TOLLENS. *Treatment of the Fever of Phthisis with Antipyretics.*
6. *MEISENBURG. *A Case of Diverticulum of the Esophagus.*
7. HOFFMANN, E. *Metastasis in Hypernephroma.*
8. FRANCK, E. *The Treatment of Hemorrhoids with Injections of Carbolic Acid and Alcohol.*

6. Meisenburg reports a case of diverticulum of the esophagus, which is interesting for the x-ray picture, and an unpleasant sequel of esophagoscopy, cutaneous emphysema resulting from laceration of the wall of the esophagus. The pouch was a small one, 2 cm. deep, and situated to the right of the median line, so that a sound introduced from the left corner of the mouth entered the diverticulum, while one from the right side passed into the stomach without difficulty. An important feature of the treatment consisted in taking food while lying on the left side; in this position the food passed by the pouch without sticking.

BERLINER KLINISCHE WOCHENSCHRIFT, NO. 2.
JAN. 14, 1907.

DEDICATED TO JOHANNES ORTH ON HIS SIXTIETH BIRTHDAY, AND CONSISTING OF RESEARCHES FROM THE PATHOLOGICAL INSTITUTE OF THE UNIVERSITY OF BERLIN.

1. KAISERLING, C. *The Effect of Intravenous Injections of Suprarenin on the Aorta of the Rabbit.*
2. *BEITZKE, H. *The Course of Inoculated Tuberculosis in the Guinea Pig.*
3. *DAVIDSOHN, C. *Muscular Cirrhosis of the Lungs.*
4. *RABINOWITSCH, L. *Latent Tubercle Bacilli.*
5. BICKEL, A. *The Experimental Production of Tympanites.*
6. SCHLOSS, O. *Is the Concentration of the Gastric Secretions Dependent upon the Concentration of Solutions Introduced into the Stomach?*
7. PEWSNER, M. *The Secretion of Mucus in the Stomach.* (Continued article.)
8. PINCUSSOHN, L. *On Pellotin.*
9. *WOHLGEMUTH. *Investigations on the Functions of the Human Pancreas.*
10. SALKOWSKI, E. *On Chyluria.*
11. NEUBERG, C., and ROSENBERG, E. *Lipolysis, Agglutination and Hemolysis.*

2. Beitzke's article consists largely in the refutation of Weleminsky's claim that the bronchial lymph nodes constitute a sort of heart for the lymphatic system, into which all the lymphatics empty. Weleminsky drew this conclusion from the fact that after subcutaneous inoculation of guinea pigs with tubercle bacilli, the local lymph nodes first become diseased, next those on the way towards the bronchial nodes and, lastly, the bronchial nodes themselves. But, as Beitzke' shows, these facts are capable of being interpreted otherwise; for instance, the bronchial nodes may be infected through the blood current *via* the lungs, or by inhalation. (The abscess after subcutaneous

inoculation usually breaks through the skin, and the contents being distributed about the cage, offer opportunity for aërogenous infection.)

3. Under "muscular" cirrhosis of the lung, Davidsohn understands that rare variety in which the interstitial thickening is chiefly due to unstriped muscle fibers, a true "carnification." In Davidsohn's case the muscle tissue seemed to be derived from the muscle fibers present normally in small numbers in the interstitial tissue.

4. The question of latency of tubercle bacilli is discussed by Rabinowitsch, and interesting work on this subject is reported. It may be regarded as settled that virulent tubercle bacilli may be present in lymph nodes which show no evidence of tuberculosis, either to the naked eye or microscopically. It is difficult to say how long such bacilli may remain latent, but virulent bacilli were demonstrated by inoculation experiments by Rabinowitsch in completely calcified lymph nodes in four cases, although calcification is usually assumed to be a sign of complete cure of the tuberculous process.

9. Wohlgemuth adds important facts to our scanty knowledge of the pancreatic secretions in man. He studied the effect of various forms of diet on the amount and ferment content of the pancreatic juice of a man suffering from pancreatic fistula. His results agree in the main with those of Pawlow, who worked with dogs. The total amount was greatest after a meal consisting exclusively of carbohydrates and least after fats, proteids taking up an intermediate place; the amount secreted after a carbohydrate meal being double that after a meal of fat. The content in trypsin, diastase and steapsin was found to be greatest in the secretion after the fat meal, least after the carbohydrate and intermediate after the proteid meal. A mixed meal containing all three forms of food gives the greatest total secretion of all, and in marked contrast with the "carbohydrate juice," this secretion showed also the greatest ferment content. The administration of hydrochloric acid caused a marked rise in the amount of pancreatic secretion, while alkali escaused a fall. The practical deductions from this work are that patients with pancreatic fistulæ should be put on an antidiabetic diet and given alkalies, in order to reduce the secretion; digestion may be furthered by the use of pancreon (or pancreatin) by the mouth.

Therapie der Gegenwart.
February, 1907.

1. *Küster, E. *The Antitoxin Treatment of Tetanus.*
2. *Schoene, C. *A Report of Thirty Cases of Cerebrospinal Meningitis Treated with Meningococcus Serum.*
3. *Fränkel, A. *The Drug Treatment of Acute Cardiac Insufficiency.*
4. Moeller, A. *The Diet in Pulmonary Tuberculosis.*
5. Nuesse. *The Finsen Institute in Copenhagen.*
6. *Fischer, W. *The Diagnostic and Therapeutic Bearings of Recent Work in Syphilis.*

1. While the subcutaneous injection of tetanus antitoxin has achieved brilliant results as a prophylactic measure, as a cure it has proved disappointing, the mortality remaining still at the high rate of 72%. The results of intracranial injection are not much better, showing a mortality of 61%. Küster considers that the best prospects are offered by two methods of administration: (1) lumbar injections and (2) intraneural injections. The former are to be made after withdrawal of a considerable amount of cerebrospinal fluid, which is exceedingly toxic in this disease. The intraneural injections are suitable for those cases where there is local involvement, usually of an extremity. The wound at which inoculation has taken place should be rubbed out with antitoxin, and antitoxin should be injected into the neighboring tissues. A single injection should be made into each of the main nerve trunks which furnish twigs to the neighborhood of the wound. Küster reports a case in which the intraneural injection was followed very promptly by recovery, and warmly recommends this method of administration, the mortality of which up to the present is 25% of 4 cases.

2. Thirty cases of cerebrospinal meningitis treated by Schoene with Jochmann's meningococcus serum gave a mortality of 27%; that of those not treated with serum was 53%. These results would appear to encourage a further trial of the serum.

3. As is well known, the action of digitalis when given by mouth or subcutaneously does not appear for twelve hours or more. Many patients, however, with acute cardiac failure require more immediate stimulation, and this can be given, according to Fränkel, in the shape of intravenous injections of strophanthin. The effect is the same as that of digitalis, and begins to be apparent in ten minutes, while within two hours the full effect is evident; the pulse becomes slower, the general condition improves and diuresis begins. It is important not to exceed the dose of 1 mgm., not to give an injection if the patient has had digitalis within three days and not to repeat the injection inside of forty-eight hours; all this on account of the danger of cumulative action. It is essential to use a chemically pure preparation, such as that of Boehringer.

6. This article reviews the recent experimental work that has been done on syphilis, with regard to diagnosis and treatment. The spirocheta pallida is regarded as most probably the causative agent; the finding of spirochetes may be regarded as positive evidence of spyhilis, but their absence is not to be taken as excluding it. The method of Neisser and Wassermann for the demonstration of specific antibodies is too complicated for general use, and the results while very striking, are, as yet, too few to draw definite conclusions. The main advance, according to Fischer, has been in the line of diagnosis of syphilis in the parents, by means of the demonstration of spirochetes in the placentæ or organs of still-born or macerated feti. He regards it as probably best to excise very early lesions in which spirochetes have been found, although Neisser has shown that in apes a general infection may have already taken place eight hours after inoculation. The question of commencing mercurial treatment in the case of primary lesions showing spirochetes is answered in the negative; one should wait until secondary symptoms have appeared. The reason for this is that mercury apparently has no action in the first stage of syphilis and does not prevent the appearance of constitutional symptoms. Neisser was unable to prevent the appearance of secondary symptoms in apes although he began mercurial treatment immediately after inoculation; similar results have been observed in man by various writers.

The Early Diagnosis of Pulmonary Tuberculosis, with Special Reference to Symptoms. Coffmann (*New York Medical Journal*, Feb. 2, 1907) gives an account of the methods of diagnosis which should be applied in all cases where suspicion of pulmonary tuberculosis arises. The importance of an exhaustive history is especially emphasized. This should include inquiries as to physical conditions in parents at the time of the patient's birth, with reference to any chronic disease or conditions such as alcoholism. It should include an account of the patient's environment from birth with regard to sources of possible infection, conditions of hgyiene and habits, also previous illnesses and their convalescences. The first reported symptoms of a series of cases of pulmonary tuberculosis have been tabulated as follows: Cough first in 44%, loss of weight in 19%, hemoptysis in 8%, pleurisy in 7%, fatigue in 6%, nervous symptoms in 4%, digestive symptoms in 1.6%, laryngeal symptoms in 1.6%, night sweats in 1.2%. Hemoptysis is a symptom which justifies a positive diagnosis. Pain, as an early symptom, is seldom mentioned, but according to Upson is present in 45% of cases. Fever is an important indication. The temperature (rectal if possible) should be taken every two hours for several days. Observations of pulse and respiration are of little value in early diagnosis. A careful physical examination and examination of sputum must next be made; but if definite signs are not found there is no reason to question the value of the evidence of the history. In such cases the tuberculin test is resorted to, beginning with doses of $\frac{1}{10}$ to $\frac{1}{2}$ mgm. and watching for a local reaction in lungs or larynx as well as for rise in temperature and subjective symptoms. A negative reaction to doses of 5 mgm. excludes tuberculosis with great certainty. The serum reaction is mentioned with favor. [This reaction, according to most recent reports, is considered meaningless.] Fluoroscopy, the author believes, can rarely detect disease in advance of the auscultatory signs.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 9, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,647	469	Quincy	7	1
Chicago	650	193	Waltham	2	—
Philadelphia	—	—	Gloucester	6	2
St. Louis	—	—	Pittsfield	—	—
Baltimore	260	70	Brookline	4	—
Cleveland	—	—	North Adams	9	1
Buffalo	—	—	Chicopee	7	6
Pittsburg	—	—	Northampton	11	2
Cincinnati	—	—	Medford	9	1
Milwaukee	—	—	Beverly	11	—
Washington	—	—	Hyde Park	5	3
Providence	84	27	Newburyport	—	—
Boston	262	57	Leominster	5	2
Worcester	45	12	Melrose	3	1
Fall River	37	12	Woburn	4	—
Cambridge	29	9	Marlborough	3	0
Lowell	34	6	Westfield	5	2
Lynn	30	9	Peabody	—	—
New Bedford	31	10	Revere	5	—
Springfield	21	5	Clinton	3	0
Lawrence	28	5	Attleboro	9	2
Somerville	27	6	Adams	2	2
Holyoke	15	10	Gardner	—	—
Brockton	7	1	Milford	—	—
Malden	12	4	Weymouth	3	0
Salem	13	5	Framingham	5	1
Chelsea	14	4	Watertown	0	—
Haverhill	22	5	Plymouth	—	—
Newton	7	4	Southbridge	7	2
Fitchburg	6	2	Wakefield	—	—
Taunton	11	—	Webster	—	—
Everett	10	1			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MARCH 6, 1907.

STONER, G. W., surgeon. Granted leave of absence for two days in February, 1907, under the provisions of paragraph 189 of the Regulations.

ROSENAU, M. J., passed assistant surgeon. Directed to proceed to Harrisburg, Pa., for special temporary duty, upon completion of which to rejoin his station in Washington. March 2, 1907.

BURKHALTER, J. T., passed assistant surgeon. Granted leave of absence for two days in February, 1907, under the provisions of paragraph 191 of the Regulations.

SALMON, T. W., assistant surgeon. Granted leave of absence for one day in February, 1907, under the provisions of paragraph 191 of the Regulations.

FROST, W. H., assistant surgeon. Granted leave of absence for one day. Feb. 24, 1907.

DE VALIN, HUGH, assistant surgeon. Granted leave of absence for one day under the provisions of paragraph 191 of the Regulations. Feb. 1, 1907.

KENNARD, K. S., acting assistant surgeon. Granted leave of absence for one day in February, 1907, under the provisions of paragraph 210 of the Regulations.

MCLARTY, A. A. acting assistant surgeon. Granted leave of absence for thirty days from Feb. 26, 1907. March 4, 1907.

STEARNS, H. H., acting assistant surgeon. Granted leave of absence for two days in February, 1907, under the provisions of paragraph 210 of the Regulations.

WILSON, J. G., acting assistant surgeon. Granted leave of absence for three days in February, 1907, under the provisions of paragraph 210 of the Regulations.

WILSON, R., acting assistant surgeon. Excused from duty for a period of fifteen days without pay from March 16, 1907.

HALL, L. P., pharmacist. Granted leave of absence for seven days from March 2, 1907, under the provisions of paragraph 210 of the Regulations.

PROMOTIONS.

ALLEN, G. C., pharmacist. Promoted to pharmacist of first class.

ROGERS, E., pharmacist. Promoted to pharmacist of first class.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MARCH 16, 1907.

J. F. URIE, surgeon. Ordered to the Bureau of Medicine and Surgery, Navy Department.

F. W. SMITH, assistant surgeon. Ordered to the Naval Hospital, New York, N. Y.

R. HAYDEN, assistant surgeon. Ordered to Naval Medical School Hospital, Washington, D. C.

E. V. VALZ, assistant surgeon. Ordered to Naval Medical School Hospital, Washington, D. C.

RESIGNATION AND APPOINTMENT.

DR. JOHN COLLINS WARREN has resigned from the Moseley professorship of surgery at the Harvard Medical School, the resignation to take effect Sept. 1, 1907.

From Sept. 1, 1907, Dr. Warren has been appointed Moseley Professor of Surgery *emeritus*.

SOCIETY NOTICES.

BOSTON MEDICAL LIBRARY MEETING IN CONJUNCTION WITH THE SUFFOLK DISTRICT BRANCH OF THE MASSACHUSETTS MEDICAL SOCIETY.—Meeting Wednesday, March 27, 1907, at 8.15 P.M., John Ware Hall. "Social Legislation in Germany and its Influence on the Care of the Sick," Hofrat Prof. Friedrich Müller, director second medical clinic in Munich.

EDWIN A. LOCKE, M.D., *Secretary*.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY IN CONJUNCTION WITH THE BOSTON MEDICAL LIBRARY.—Meeting Wednesday, April 3, at 8.15 P.M., at John Ware Hall. "Surgical Treatment of Exophthalmic Goitre," by Dr. C. H. Mayo. Discussion by Drs. W. T. Porter, J. J. Putnam and J. C. Munro.

J. C. HUBBARD, M.D., *Secretary*.
84 BAY STATE ROAD.

RECENT DEATHS.

DR. WILLIAM LAMB, a retired physician, seventy-four years old, died from cerebral apoplexy on March 14 in New York, where he had resided for some time past. He had practised in St. Catharine's, Ontario, Lockport, N. Y., and Swarthmore, Pa.

DR. GEORGE TAYLOR CHURCH, of Brooklyn, N. Y., died on March 10, from cardiac disease, at the age of forty-nine years. He was graduated from the Dartmouth Medical School in 1894, and for a number of years was one of the medical examiners of the Civil Service Board.

BOOKS AND PAMPHLETS RECEIVED.

The Johns Hopkins Hospital Reports. Vol. XIII, Studies in Urological Surgery. Vol. XIV, Studies on Hypertrophy and Cancer of the Prostate. Baltimore. 1906.

The Practitioner's Medical Dictionary. By George M. Gould, A.M., M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Catholic Churchmen in Science. Sketches of the Lives of Catholic Ecclesiastics who were among the Great Founders in Science. By James J. Walsh, M.D., Ph.D., LL.D. Illustrated. Philadelphia: American Ecclesiastical Review. The Dolphin Press. 1906.

The Cure of Psoriasis, with a Study of 500 Cases of the Disease, Observed in Private Practice. By L. Duncan Bulkley, A.M., M.D. Reprint.

Modern Ideals in Medicine. By Robert M. Green, A.B. M.D. Reprint.

The Service of Missions to Science and Society. By W. W. Keen, M.D., LL.D. Boston: American Baptist Missionary Union. 1906.

Tumors of the Carotid Gland. By W. W. Keen, M.D., LL.D., and John Funke, M.D. Reprint.

Original Articles.

THE CRUSADE AGAINST TUBERCULOSIS IN GERMANY.

BY EDWIN A. LOCKE, A.M., M.D., BOSTON.

THE campaign against tuberculosis in Germany by reason of the magnitude and completeness of its organization as well as the valuable results already achieved, is the model of the world. To clearly describe any particular part of this splendid system is impossible without a consideration of its relations to the movement as a whole.

While Germany has for several decades made a vigorous scientific attack on the problem of tuberculosis, it has been only within the past fifteen years that general interest has been awakened in it as a great social and economic one. The object until recent years was practically restricted to the cure of the early cases of the disease, and but small effort was expended even in this narrow field. Now, besides the tremendous increase in the attention given to the treatment of the sick, even greater effort is put forth in the protection of the well. It seems profitable to consider somewhat in detail this great national movement which has claimed the unselfish labor of so many of Germany's most able minds, has enlisted the aid of all classes and necessitated the vast expenditure of hundreds of millions of marks.

Several fundamental considerations which make such a general movement possible should be borne in mind: First, the entire kingdom of Germany is under uniform laws, those pertaining to disease and the general health of the people being controlled by a national board of health presided over by a cabinet minister.[1] Through this imperial health bureau a most exhaustive investigation of the existing conditions has been carried out and relief measures promulgated; second, the admirable scientific spirit which permeates German medicine is largely responsible for the effectiveness of this organization in that it has, step by step, pointed the way to success; third, the compulsory insurance against sickness and invalidity has placed at the disposal of the authorities immense funds which could in part be directly applied to the erection and maintenance of sanatoria, convalescent homes, care of the consumptive's family, etc.

STATISTICS.

A few general statistics regarding the number of those suffering from tuberculosis, the mortality rates and results achieved will serve to make more evident the need, scope and justification for the marshalling of so many forces in the combat against a single disease.

According to the report of the Imperial Health Office, during the period 1894-1897 in an average population of 49,743,000 the yearly deaths from consumption were 111,067 (*i. e.*, 22.45 per 10,000 living) and the total number of living consumptives at least 1,000,000. During the years 1892–1900 in the ten states comprising Germany, 1,066,722 persons died of the disease, *i. e.*, an average of 118,525 yearly, or 24.2 per 10,000. Statistical studies have shown that of all persons dying between the ages fifteen and sixty, in one third the cause of death is tuberculosis. It is estimated (Blumenthal) that the yearly number of consumptives in Germany sufficiently advanced to require hospital treatment is at least 226,000. The accompanying chart (Fig. 1) shows in a striking manner the very gratifying diminution in the mortality from tuberculosis in the kingdom from the year 1875 to 1903. Blumenthal gives an interesting comparison of the number in every 10,000 of the population in large cities of Prussia dying from tuberculosis and those from other diseases of the respiratory tract. (See Table I.) It will be seen that while the fall in the mortality per 10,000 for consumption was from 35.31 in 1876 to 20.36 in 1903, or a diminution of 42%, the fall in the mortality per 10,000 for all other diseases of the respiratory organs was from 31.09 to 24.54, or a diminution of only 21%; in other words, the decrease in the number of deaths from lung tuberculosis was twice as great as in the case of all other diseases of the respiratory organs. The statistics for all German cities of more than

[1] Minister für Medicinal Angelegenheiten.

TABLE I.

Year.	Number Cities.	Number of deaths per 10,000 From Tuberculosis.	From all other diseases of the respiratory organs.
1876	6	35.31	31.09
1881	7	35.57	34.17
1886	12	37.36	32.70
1891	16	31.32	32.64
1896	18	26.05	29.93
1901	22	23.92	27.79
1902	24	21.01	26.67
1903	25	20.36	24.54

Table showing the number of deaths from consumption and other diseases of the respiratory tract per 10,000 inhabitants in the large cities of Prussia during the years 1876 to 1903.

FIG. I.

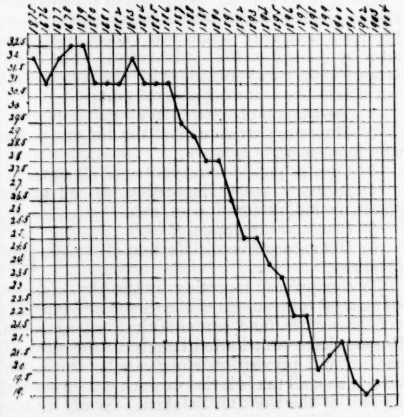


FIG. 1. Annual death-rate from pulmonary tuberculosis, per 10,000 inhabitants in Germany from 1875 to 1903.

15,000 inhabitants show a diminution in the mortality from tuberculosis of the lungs from 35.77 per 10,000 in 1877 to 19.38 per 10,000 in 1903.

PART I. THE FACTORS IN THE CRUSADE.

1. The *state* has, in many ways, both directly and indirectly, constantly afforded the campaign the greatest aid. Through the Imperial Health Office (*Reichs-Gesundheitsamt*) and its associated corps of the most eminent medical authorities from the various states, exhaustive investigations have from time to time been conducted with the purpose of determining the extent of the scourge, its mode of spread and the effectiveness of many preventive and curative measures. As a result of these investigations uniform laws have been put in force. Most complete and vigorous measures have been taken in the army and navy. The state has made large appropriations for scientific studies, for aid in the building of sanatoria, for the "Krankenkassen," etc. Recently the great activity throughout the kingdom on the part of the state in the work of improving the dwellings of the poor has had a most beneficial, indirect influence in preventing the spread of tuberculosis. Of the greatest importance is the system of workingman's insurance which was called into existence by the law of 1881 (*vide infra*). The many prophylactic measures taken by the government fall within the following general groups:

(1) Restriction of spitting in all public places.

(2) Measures for the relief of the dangers to the workingmen while at work.

(3) Care in public conveyances of all sorts.

(4) Sanitary police inspection of all public places, including dormitories, etc.

(5) Care and inspection of food.

(6) Obligatory free disinfection of houses and furniture.

(7) Compulsory reporting by the physicians of all cases of tuberculosis of the throat and lungs.

2. The *cities* (and communities), especially of Prussia, have contributed largely to the work of healing and prevention along similar lines. In several a small tax is levied on each citizen for the support of the work undertaken. Nearly all the municipalities now require the reporting of all cases of tuberculosis, provide for free disinfection, examination of sputum and the general inspection of dwellings. Several have erected sanatoria (Berlin, Hamburg, Stettin, Halle, Strassburg and others). Polyclinics, especially for tuberculosis, are maintained as part of the university clinic in Berlin, Greifswald, Halle, Göttingen, Bonn, Marburg, Kiel, Strassburg, Heidelburg and Breslau, and in connection with hospitals in Frankfurt a. M., Hagenau, Aachen, Kassel, Wiesbaden, Magdeburg and Stettin. In the last-named city a special experimental laboratory and retention hospital is supported by the local "Fabrik-Krankenkasse," any member of the "Kasse" being allowed to remain one week for observation, during which time a benefit is given to the family. The activities of the cities in the establishment, through their local societies, of dispensaries, tuberculosis museums, forest convalescent homes, hospitals for the advanced cases and vacation colonies, are too numerous to mention.

3. The *workingmen's insurance* (*Arbeiterversicherung*) is probably the most powerful factor employed against this disease. With the enormous growth of this organization has come a new power which is largely responsible for the extraordinary development of the crusade in the past decade.

The present system of workingmen's insurance was established by a decree of Kaiser Wilhelm der Grosse, Nov. 17, 1881, a measure intended to further the welfare of the working people and as a partial remedy for the then existing conditions of want and distress among the poor, conditions which in a large measure are always unquestionably directly responsible for much of the sickness in the family. Through the influence of changed economic and industrial conditions the laboring man has become more dependent and more exposed to dangers to life and health.

By law every working man in Germany of the laboring or servant class must belong to the government insurance association and is thus insured against (1) sickness (*Krankenversicherung*), (2) accident (*Unfallversicherung*), (3) invalidity and old age (*Invaliden und Alterversicherung*).[2]

Under the provisions of the compulsory insurance the insured when incapacitated by sickness, accident, invalidity or old age, has a legal claim to assistance to himself and family and is thus kept from becoming an object of charity.

(1) *Sick insurance.* — To this belong practically all industrial and agricultural workers and officials without regard to age or sex, whose yearly salary is less than 2,000 marks. They are divided into five classes, according to the amount of salary received and the dues are adjusted according to the same standard, *e.g.*, Class I includes all those receiving a yearly salary up to 350 marks, and for these a weekly assessment of 14 pfennigs is made; Class V includes all those whose yearly salary is more than 1,150 marks, and here the assessment amounts to 36 pfennigs per week. In all cases the employer is held responsible for the payment of all premiums of which he contributes one third and the workman two thirds. In case of illness which renders the insured incapable of work for more than three days an allowance equal to one half his wages is paid him to the limit of thirteen weeks, and under certain conditions this may be continued in part or entire for a period up to one year. He further receives free medical attendance and hospital treatment if necessary, in which case his family is provided for during the period of his disability. Provision may also be made by which the patient may be sent to one of the many convalescent homes or "baths." In case of death an extra allowance equal to twenty times the

[2] NOTE. — The existing insurance laws are as follows:
(1) das Krankenversicherungsgesetz, vom 15, Juni, 1883, mit der neuen Fassung vom 10, April, 1892;
(2) das Unfallversicherungsgesetz vom 6, Juli, 1884, mit verschiedenen Nachträgen über die Einziehung der land- und forstwirthschaftlichen Arbeiter, die auf Bauten beschäftigten Personen und die Unfallversicherung der bei der Seeschifffahrt Betheiligten;
(3) das Gesetz über die Invaliden- und Alterversicherung vom 22, Juni, 1899, welches durch die Novelle vom 13, July, 1899, die Einfachere Bezeichnung "Invaliden-versicherungsgesetz" erhalten hat. (Jacob & Pannwitz.)

daily wage is made to the family of the deceased.

(2) *Accident insurance.*— This form of insurance is compulsory for the same class as in the previous form, but instead of one third the entire premium is paid by the employer. In case of bodily injury causing partial or complete disability, the insured is granted a benefit beginning in the fourteenth week, the amount depending upon the earnings of the insured and the severity of the injury, but in no case exceeding 66⅔% of his salary. He is also furnished with free treatment. Should death result from the accident the burial expenses are paid and a pension given to the family to the extent of one fifteenth of the salary formerly received.

(3) *Invalidity* and *old age insurance* is obligatory for all workingmen over sixteen years of age, including laborers, servants, officials, clerks, salesmen, apprentices and others whose yearly salary does not exceed 2,000 marks. The premiums, as in the other forms, are in proportion to the wages earned, the employer and employee contributing equally, while the government makes an allowance of 50 marks. The dues are levied in the form of stamps which are pasted to receipt cards by the employer when the wages are paid, the amount being deducted from the wages. Invalidity insurance renders aid as follows: (1) For continued disability, an allowance for twenty-six consecutive weeks up to 116 to 450 marks; (2) in old age (*i.e.*, with the beginning of the seventy-first year) an income up to 110 to 230 marks; (3) in case of marriage, accident or death, to a limit equal to one half the amount of premiums paid; (4) support of the family of the insured during his treatment.

Workingmen who for any reason are exempt from compulsory insurance may, under certain conditions, voluntarily enter any of the three forms of insurance.

Some idea of the extent of the state insurance can be given by the following figures taken from a recent census. Out of a total population of 56,000,000 more than 8,000,000 are insured against sickness, 17,000,000 against accident and 13,000,000 against invalidity and old age. The total accumulated funds amount to more than a billion marks.

The collection of premiums and disbursement of indemnities of the various insurance societies is managed by the "Krankenkasse," of which there are more than 5,000 branches, or "Ortskrankenkassen," in various parts of the kingdom. These "Krankenkassen" draw funds from other sources as well as the above and have the care of the sick and needy who are not insured besides many other duties.

These three forms of state insurance are virtually one organization, and their far-reaching combined influence has greatly raised the social status of the workingman. Besides caring for the needy insured and his family they have aided enormously in improving the dwellings of the poor, providing sanatoria and hospitals, vacation camps, convalescent homes, etc. To the end of 1904 the insurance societies had expended 33,000,000 marks for the erection of sanatoria alone, and for all institutions for the care of the sick more than 178,000,000 marks. In no field has this effort been more effective than in the struggle against tuberculosis, and here the invalid and sick insurance are especially concerned. The problem was early attacked from an economic standpoint, and a brief experience proved beyond a doubt that the most economical method of handling the consumptive is by providing for him sanatorium treatment. The cure of the sick is thus a natural economic outgrowth. Enormous sums have thus been devoted to the further extension and maintenance of institutions suitable for the treatment of the insured suffering from tuberculosis. Insurance statistics show that one half of all invalidity among workingmen past thirty years of age is due to tuberculosis.

Again, for economic reasons, much attention is given to general prophylactic measures looking to the raising of the general conditions of life through improvement of dwellings, food, home instructions as to the care of the sick, etc. Prevention of sickness is undertaken as an investment. Nearly 40,000,000 marks has been given by the insurance societies for the building of improved dwellings, and the exceptional condition of the houses of the working classes in the German cities is sufficient proof of the powerful influence of these agencies.

4. The *German Red Cross Society*, though primarily an army organization, has, since 1895, taken a very active part in this field. The organization is kept efficient and intact by this activity in times of peace and in readiness for immediate service in the advent of war. In 1897 an agreement was reached with the state insurance societies whereby the Red Cross nurses were placed at their disposal, the aim being to "organize municipal sick nursing adapted to local conditions." The main efforts of the Red Cross have been directed to the establishment of model sanatoria, convalescent homes, family dispensaries, employment bureaus, children's sanatoria and farm colonies. By means of cash boxes in public places and personal solicitation, large funds are raised yearly for the work. The first sanatorium with 190 beds was built at Grabowsee, near Berlin, in 1895, as an experiment. Here the "Döckerschen Borracken" (small portable buildings), now so much employed in Germany, were first used. During the years 1903 and 1904, 1,655 patients were treated at Grabowsee. In 1899 the "Heilstätte Vogelsang," near Magdeburg, with 220 beds for women, was built under the direction of the Red Cross by the "Vaterländischen Frauenverein der Provinz Sachsen." "Die Heilstätte zu Oberkaufungen bei Kassel," for both sexes, with 112 beds, was founded in 1900. "Die Sophienheilstätte bei Berka," opened by the women's association of the fatherland in 1898 for 136 patients, instituted an "employment cure." The total valuation of the Red Cross sanatoria is 974,000 marks.

One of the most important undertakings on the

part of the Red Cross organization is the care of the families of the patients who are in the sanatoria. They are visited, aided, advised and sent to the various polyclinics for examination. In 1905, 915 families were thus cared for. The work of the Red Cross is entirely in conjunction with other organizations, and is made much more far-reaching through the many local societies under its control.

5. *The German Central Committee for the establishment of sanatoria for diseases of the lungs (Deutsches Central-Komite zur Errichtung von Heilstätten für Lungenkranke).* — A new epoch in the crusade against tuberculosis in Germany was begun with the organization of the Central Committee in 1895, a permanent organization with its headquarters in Berlin. The policy of the society is determined by a council and the plans of work carried out by a paid executive or general secretary (Professor Pannwitz) through its 85 committees and 1,500 members in various parts of Germany. It has thus spread like a net over the whole empire. General yearly meetings are held and comprehensive reports issued. The astonishing growth of sanatoria in Germany has been due largely to the activity of the Central Committee. Primarily founded to aid in the building of sanatoria, it has, through its association with other organizations, broadened its field of interest to include nearly every activity in the campaign. When aiding in the erection of sanatoria, the principle of the association is to furnish funds only when the remainder of the cost and funds for maintenance are assured. Through a special bureau direct supervision and control are exercised over the choice of location, type of buildings and all the details of construction. Eminent architects, engineers, builders and sanitary engineers as well as clinicians are members of the council. The sources of income are as follows: (1) dues from members, (2) private contributions, (3) a yearly grant of 60,000 marks from the government and (4) lotteries sanctioned by the state. From the last mentioned source alone nearly a million marks has already been realized, and in 1908 another lottery for 400,000 marks will be drawn. The total expenditures of the committee in the year 1905 were 321,833 marks. Since 1901 the Central Committee has done much through conferences with the directors of all the sanatoria to bring about the adoption of the best methods of administration and treatment as well as uniform statistics. It is in close touch with every sanatorium in Germany. Beginning with 1904 especial attention has been given to preventive measures, and now the paramount aim is to provide for the advanced cases. These efforts will be further described in part second of this paper.

6. *Private contributions* have played a less prominent part in Germany than in our own country, yet are an important factor. They are confined largely to the erection of sanatoria and other institutions for treatment.

7. *Societies and associations.* — In 1905 there were in the whole kingdom 120 societies of various character closely associated with the Central Committee whose purpose was to aid directly in combating tuberculosis. These have been largely the agencies through which the effective work has been accomplished. By raising funds for the erection of sanatoria, hospitals, convalescent homes, dispensaries and forest schools, land colonies, caring for the families of the afflicted, disseminating knowledge concerning the cure and prevention of the disease among the people, improving the dwellings of the poor, furnishing children with free vacation in the country, establishing tuberculosis museums, and in many other ways they have given a most powerful impetus to the movement. By the aid of such associations representing communities, the Central Committee aims to draw both funds and personal assistance from all classes in order that the burden may fall equally.

8. *Employers.* — The great activity of the workingmen's insurance associations in the efforts to stamp out tuberculosis has naturally brought the employer and great landowners in close touch with the work. Besides individual contributions of money and interest in one or another branch of the campaign, the employers have contributed considerably towards caring for the afflicted workmen and their families. Much has been accomplished in providing model dwellings for employees. A few employers have built up a sick fund for the benefit of their employees.

9. The *congresses*, both national and international, which have frequently convened during the past fifteen years, have done much to shape general policies and to arouse a deeper interest among the physicians and the general public. The Berlin Congress of 1899 (*Kongress zur Bekämpfung der Tuberkulose als Volkskrankheit*) was especially fruitful in the general interest which it aroused in the campaign against tuberculosis as a disease of the masses and is spoken of as a "milestone" in the crusade.

10. *Public education.* — The leaders in the German antituberculosis crusade have from the beginning fully realized that but little could be accomplished without the co-operation of an intelligent public. As above stated, the problem has been treated as a social and economic one. Many of the methods of reaching the people are familiar and I shall merely mention some of the more important without explanation or comment. The thirty or more thousand who are yearly treated in the sanatoria contribute greatly to the efforts to disseminate a general knowledge of the nature of the disease and the proper methods of treatment and prophylaxis. Many of the factors mentioned above, especially the insurance societies, Red Cross, Central Committee, state and various societies, have taken an active part in establishing exhibits and museums, arranging public lectures, distributing pamphlets and giving individual instruction in the family of the consumptive. The school affords another avenue through which the public can be reached.

11. *Scientific investigations.* — The contribution

of science to this movement as a direct guiding influence is probably greater than that to the struggle against almost any other disease. As early as 1865 the French physician Villamin demonstrated the transmissibility of tuberculosis from one individual to another, but the discovery of the specific cause (tubercle bacillus) by Koch in 1881, together with his masterly description of the pathological changes taking place in the lungs, illuminated the whole field of activity and marked a new epoch in the crusade. From this work and the investigations growing out of it date practically all the measures now in force for both the cure of the sick and the protection of the well. The numerous researches of recent years on bovine tuberculosis and immunity promise to further revolutionize the present methods of treatment. With this great campaign will ever be associated the names of Koch, v. Behring, Virchow, Aufrecht, Römer, Eber, Lorenz and others.

(To be continued.)

DIFFUSE PERITONITIS FOLLOWING APPENDICITIS IN YOUNG CHILDREN WITH CLINICAL REPORTS OF SEVEN CASES.

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THE following paper is based on the study of seven cases of acute diffuse peritonitis which were admitted to the service of Dr. H. L. Burrell at the Boston Children's Hospital, from Oct. 1, 1906, to Jan. 19, 1907. The writer is indebted to Dr. Burrell for the opportunity to operate on these cases, and for the privilege of reporting them. By a *diffuse peritonitis* is understood an inflammation of the peritoneum, starting from a definite focus, and not sharply limited by adhesions of the intestines at the margin of the inflammatory area which tend to limit further extension of the suppurative process.

In extent a diffuse peritonitis may vary from the involvement of a small area about the primary focus to the involvement of the entire peritoneal cavity and its contents. The latter condition is a true general peritonitis, a term which should be used only to express the extent of a diffuse peritonitis. Inasmuch as such a condition can rarely, if ever, be demonstrated at operation, it is better to use the term " extensive diffuse peritonitis " when, as far as can be demonstrated, the process appears to have invaded practically the entire peritoneal cavity. One of the cases here reported (4) does not, strictly speaking, come under the definition of diffuse peritonitis since there were found at operation multiple abscesses involving the pelvis, the entire right half of the abdomen, and extending well beyond the median line and above the umbilicus.

The cases reported were not selected from a large number but represent seven consecutive cases admitted to the hospital as " acute appendicitis " in a period of a little over three months. The observation and study of these cases has convinced the writer that appendicitis in children exhibits certain features not altogether common in adults, and not usually set forth in the works on the subject. The object of this paper is to call attention to these features, and to emphasize certain details in the diagnosis of the disease, its course and its treatment.

In the following case reports, the duration is reckoned from the appearance of the initial symptom, and in some of the cases it will be noted that this was some time before the child was actually confined to bed. In the histories only leading symptoms are given, and in the examinations only positive signs are mentioned. The details of the operations are omitted and only the pathological findings given. All of the cases were operated within an hour or two after admission to the hospital, and no case was refused operation on account of extreme condition.

The average age of the patients was four and one-half years, the youngest being three and the oldest eight years. In all of the cases the primary focus of infection was the appendix.

CASE I. H. C., female, five years. Diffuse peritonitis; operation; recovery.

The child was brought to the hospital at 5 P.M. Forty-eight hours before she had vomited once, but complained of no pain. On the day before entrance, she went to school as usual, but that night began to complain of pain about the umbilicus, which continued up to the time of admission.

Her general appearance at that time was apathetic, her tongue dry. She was in fairly good condition, the temperature 102° and the pulse 130. The abdomen was rigid on the right side and moderately tender over its lower half.

On opening the abdomen over the right iliac region, there was considerable free sero-purulent fluid, and a diffuse reddening of the intestines extending well beyond the median line. There were no adhesions. A much swollen appendix, gangrenous at the tip, was removed, and a cigarette drain inserted.

There was no further vomiting; the bowels responded readily to enemata, she took food well from the time she was out of ether and had an uneventful convalescence.

CASE II. W. B., male, five years. Diffuse peritonitis; operation; death.

For a week before admission to the hospital this boy had refused to take food; he had vomited frequently and complained of stomach ache. The bowels were very loose. His physician stated that there were no localizing signs until twenty-four hours before he was sent to the hospital, when the child seemed more tender over the appendix than elsewhere.

His general appearance at admission was one of marked prostration. His face was drawn and pinched, and his expression anxious. The tongue was dry and brown. The temperature 102° and the pulse 160, of low tension.

There was noticeable fullness over the right side of the abdomen, extending to the left well beyond the umbilicus. Tenderness and spasm were general and distention was marked.

On opening the abdomen over the appendix, there was immediate escape of pus, which filled the pelvis, and the entire right side of the general cavity. To the left of the umbilicus there were a few light adhesions. A perforated gangrenous appendix was removed. The abdomen was irrigated with salt solution and

drainage was placed to the pelvis, the appendix stump, and the right loin.

The child was in profound shock at the close of the operation, but reacted well upon stimulation. He would not take food, however. Food was given by rectum, but he gradually failed and died fourteen hours after operation.

CASE III. L. O., female, three years. Extensive diffuse peritonitis; operation; death.

The child was brought to the hospital at four o'clock in the morning. For four days she had refused all food and had complained of abdominal pain at intervals although she had been up and about until the day before, when she was kept in bed because her abdomen "swelled up" and she began vomiting. About twelve o'clock, four hours before she was brought to the hospital, she began vomiting greenish material. Her bowels had moved daily.

Her features were pinched, the eyes sunken, and her expression anxious.

The temperature was 104.6° and the pulse about 140, weak and thready. The abdomen was markedly distended. There was no muscular spasm, and only very slight tenderness located low down on the right side.

The abdomen was opened through the right rectus muscle and a diffuse purulent peritonitis, as far as could be made out through this incision and a counter-incision on the left side, general in extent, was found. The appendix was felt firmly adherent, deep in the pelvis, but on account of the child's condition, its removal was considered unwarrantable. The general cavity was flushed with salt solution. A convenient loop of distended ileum was opened and a tube tied in through the wound on the right side, with the escape of considerable gas.

The child stood the operation poorly; she was propped up in bed, but this posture proved exhausting and was discontinued. She did not recover from the shock of operation, and died six hours later.

CASE IV. P. McT., male, three years. Multiple abscesses; operation; recovery.

Three days before admission, this boy was seized with an attack of vomiting. He was not sick in bed until two days later, but he complained of abdominal pain which was apparently general. The day before admission he vomited again. His bowels had not moved for two days. An enema given just before operation brought away a slight result.

He looked sick. He lay with both thighs flexed. Straightening the legs made him cry. The temperature was 100° and the pulse 140, of poor quality.

Spasm of the abdominal muscles was fairly well marked, especially on the right side. There was slight tenderness over the appendix and slight general distention.

On opening the abdomen, an abscess surrounded by light adhesions was found which filled the right lower quadrant. In exploring the extent of this abscess, the finger broke into an abscess which filled the pelvis, another to the left of the median line, and still another about the umbilicus. A perforated gangrenous appendix was found lying over the pelvic brim and was removed.

Following the operation, the bowels were moved with difficulty. There was persistent vomiting and high, thready pulse. Forty-eight hours after operation the child was in collapse. The local abdominal condition was satisfactory. There was a marked sweet odor to the breath and on examining the urine, a large amount of acetone was found present. Sodium bicarbonate was given by rectum and vomiting ceased in a few hours, and the pulse became lower, although traces of acetone were found in the urine for five days.

Three days after operation the temperature became elevated, and continued so for five days, when on exploring the wound a secondary abscess at the base of the cecum was found and drained. The temperature and pulse became normal. There was subsequently a fecal fistula, which closed spontaneously at the end of three weeks.

CASE V. C. S., male, eight years. Diffuse peritonitis; operation; recovery.

Thirty-six hours before admission, this boy began to complain of stomach ache and would not eat breakfast. He vomited once or twice during the day and at night complained of considerable pain on the right side of the abdomen. About ten hours before admission the pain suddenly ceased.

His general condition at the time of admission was extremely poor. The pulse was 160, of poor quality; the temperature 102°. The facies was sunken and anxious. He lay with his right thigh flexed. There was general spasm and tenderness of the abdomen, most marked on the right side.

The abdomen was opened over the right iliac region with the immediate escape of free pus. A fibrinous peritonitis extended to the left beyond the median line, and involved the pelvis, with no walling off process at the margin of the inflammatory area. The appendix was perforated at its tip and at its base. There was a gray sloughing area in the cecum the size of a quarter-dollar, surrounding the base of the appendix. On account of the patient's condition the appendix was simply tied off and removed, no attempt being made to turn in the apparently gangrenous area. The pelvis and right side of the abdomen were irrigated and drained.

He reacted quickly from the shock of operation and made an uneventful recovery. There was no fecal fistula.

CASE VI. J. A., male, six years. Extensive diffuse peritonitis; operation; death.

Forty-eight hours before admission, the boy vomited once and subsequently complained of pain in the stomach, which increased during the following day and was accompanied by vomiting. Twenty-four hours before admission he began coughing. The abdominal pain ceased about twelve hours before admission. The bowels had not moved for two days. The boy was sent to the hospital with the diagnosis of "Pneumonia or Abdominal."

At the time of admission, the child was in a condition of extreme prostration. His expression was anxious and the facies was drawn. The temperature was 102°, and the pulse 160, of poor quality. The heart action was weak, the respirations were fifty to the minute and shallow. There were a few râles to be heard at the base of the right lung. He lay on his right side with both thighs flexed.

The abdomen was moderately distended and there was slight general spasm and tenderness.

At operation, free pus filling apparently the entire peritoneal cavity was found. The appendix was gangrenous and perforated. The appendix was removed, the general cavity flushed, and the pelvis and both flanks were drained.

The child died one hour after operation.

CASE VII. M. K., female, six years. Extensive diffuse peritonitis; operation; death.

This child was brought to the hospital at noon. She attended school the previous morning. At noon, twenty-four hours before admission, she first complained of pain in the right side of the abdomen. She vomited once in the afternoon, when the pain became general and more severe. The bowels had not moved for two days.

The facies was peritoneal, the general condition extremely poor, the pulse 160, weak and irregular. The temperature was 102°, the tongue dry and brown. The abdomen was considerably distended and there was slight general tenderness and spasm. Shifting dullness in the flanks was demonstrated.

The abdomen was opened twenty-six hours after the first symptoms, and extensive purulent peritonitis was found. The bowels were considerably distended. The appendix was much thickened and inflamed, but without obvious perforation. It was removed, a counter-incision was made in the left side and the general cavity washed out and drained.

The child stood the operation poorly and was in collapse at its close, but she reacted fairly well. The following day the abdominal distention became more marked and the child vomited once. Repeated enemata failed to produce results and in the afternoon enterostomy was considered. About this time, however, the child passed a small amount of gas by rectum and owing to this fact and also to her extremely low condition, any operative procedure did not seem justifiable. There were no further results from the bowels, however, and the following morning the distention was more marked and the child was vomiting.

Without anæsthetic one of the mass sutures in the wound on the right side was removed, and a distended loop of ileum which presented was opened, with the escape of a small amount of gas and fecal material and a glass tube was tied in. Irrigation of the bowel with salt solution failed to produce satisfactory results, and another enterostomy was done through the wound on the left side. This was followed by a copious escape of gas and greenish fecal material. A saturated solution of Epsom salts was run into the bowel and the tubes clamped. In the course of half an hour the clamps were removed and there was a considerable amount of fecal material and gas discharged. At the same time a small watery stool was passed through the rectal tube. The child improved, took milk in small amounts well during the afternoon. Late in the afternoon the pulse grew weaker and no longer responded to stimulation, and at half past five the child suddenly had a convulsion and died.

I. PROGRESS AND COURSE OF APPENDICITIS AND PERITONITIS IN CHILDREN.

Perhaps the most striking feature in the study of these cases is the fact that the pathological conditions found at operation were out of all proportion to the duration of the illness. Eliminating Case II which had been sick one week there were 6 cases with diffuse peritonitis, in three of which the peritonitis was so extensive as apparently to involve the entire greater cavity, with an average duration of less than forty-eight hours from the appearance of the initial symptom.

This disproportion between the duration of the illness and the condition found at operation may be due to one or both of the following reasons:

1. The course of appendicitis is more severe and more rapid in children than in adults.

2. The process had been going on for some time before the child manifested the first symptom, and hence the duration of the illness as shown in the history did not represent the true duration of the disease.

It is a well-known fact that children exhibit a marked indifference to pain. Their nervous sensibility is lower than that of adults, and they are not likely to complain unless for a definite reason. Examples of this fact are common. In the out-patient clinic of the hospital, for example, a child will be brought in for the first time because the mother has noticed a lump on the clavicle which proves to be a callus. This, or the fact that the child does not move one arm as freely as the other may be the first manifestation of trouble. It is noticeable that following surgical operations on children, the need of morphia for pain is the exception rather than the rule, and it is common to see a child amusing himself with toys an hour or two after he is out of ether. The writer recalls a case of severe and extensive diffuse peritonitis following a gangrenous appendix in a young boy operated on by Cotton at the Boston City Hospital. The duration of the symptoms was less than twenty-four hours. The boy was playing, fell down and turned his elbow under him, pushing it against his abdomen. He vomited and from that time, although suffering little pain, grew progressively worse. It is hardly reasonable to suppose that the trauma was the cause of the appendicitis and that he did not have a diseased appendix before he fell down. He made a good recovery. These are conditions which are not common in adults excepting in those of low nervous energy and possessed of a marked and unusual indifference to pain.

Therefore, it is the writer's conclusion that children are quite likely to carry an active process in the appendix for some time before they exhibit a symptom.

Once the appendix is ruptured, however, there is no doubt that the course of peritonitis is extremely rapid. In cases V and VI there is good clinical evidence of the time of perforation (less than twelve hours), and peritonitis in both cases was extensive. In Case VII, of twenty-four hours' duration, the abdomen was literally full of pus. The same relations between the virulency of the infecting organism and the resistance of the individual apply in the case of children as in the case of adults. The remark is often heard that "a child will stand anything." This is relatively true providing that the invading process, or the trauma, is of short duration, for children react more quickly than adults. A child, however, has a relatively smaller supply of fighting power. He is therefore less able to put up an effective resistance against a *progressing* and continued invasion of infection than an adult, and he is consequently more quickly overwhelmed by toxemia and is more rapidly prostrated.

In the series of cases here reported, at the time of admission to the hospital three of the patients were *in extremis*, three were in poor condition and only one was in fair condition.

It was a noticeable fact that in 5 out of the 7 cases, the perforation in the appendix was large, *i.e.*, as great in diameter as a split pea. Whether or not a large perforation is more common in children than in adults, is not within the writer's experience to say, although perforations of the appendix which he has seen in adults have, as a

rule, been small. There can be no doubt that with a large perforation, and a consequent sudden outpouring of a large amount of fecal material into the peritoneal cavity, there will be less likelihood of the formation of a definite walling-off process. One reason why a large perforation might more frequently occur in children is that the appendix is small. When the organ is infected, therefore, the circulation may be cut off from a relatively larger area, and consequently a larger perforation will follow.

II. SYMPTOMS AND SIGNS.

One of the very earliest symptoms of abdominal mischief in children is a *disinclination to take food*. This occurs before vomiting in about half the cases. *Vomiting* is an early symptom usually occurring before *pain*, which is, as a rule, general. Frequently the child will be up and about during the early part of the disease and will be confined to bed only upon the onset of symptoms of the severest character. (*Vide* Cases I, III, IV and VII.) The *pulse* is almost invariably rapid and of low tension. The *temperature* is relatively low. The *facies* even early in the disease is drawn and pinched, and with the onset of spreading peritonitis become rapidly and markedly peritoneal. The *tongue* is dry and coated. The *respirations* are rapid. Children are likely to assume a characteristic *decubitus*. They lie on the right side with one or both thighs flexed.

The *abdominal examination* in this series was of special interest. *Tenderness* was as a rule general, although perhaps more frequently marked on the right side. *Spasm* was not present in 5 out of 7 cases. The amount of spasm seemed to bear an inverse relation to the severity of the illness. Distention was present in a greater or less degree in all cases except one. *Free fluid* was demonstrated before operation in one case (VII). Attempts to demonstrate free fluid in cases of peritonitis are not, in the writer's opinion, justifiable, inasmuch as such attempts are an additional trauma. Furthermore, the sign, when present, is of no consequence either in diagnosis or treatment.

III. COMPLICATIONS AND SEQUELÆ.

1. *Acetonemia.* — (Aciduria; acetonuria; acid intoxication.) It is not possible in the limits of this paper to consider this condition in detail. It is necessary only to mention its clinical significance. Occurring somewhat rarely in adults, it is a common complication in children, occurring apparently from various causes, but most commonly following surgical operations or the administration of an anæsthetic. The mere presence of acetone in the urine is of no particular clinical significance. In those cases, however, in which the intoxication is sufficient to produce symptoms, and such cases are fairly frequent, the recognition of this condition is of extreme importance. Briefly, the symptoms are *persistent vomiting, rapid low tension pulse*, the *characteristic sweet "chloroform" odor to the breath*, and the *presence of acetone in the urine*. The *temperature* is usually moderately elevated, and the face is pale. Unless the process is checked early, the child goes to pieces rapidly, and it is occasionally a cause of death, even after the simplest surgical procedures. When complicating acute abdominal disease, it is a grave condition. In the case of children, with persistent vomiting associated with high pulse, following operation, the condition should be suspected and the urine examined. The early administration of sodium bicarbonate either by mouth or rectum in doses of 15 to 30 gr. every hour, together with small, frequent doses of brandy, is usually effective in checking the process.

Acetonemia complicated Case IV of this series.

2. *Secondary abscess* is not common. A persistently high temperature or a fluctuating temperature should lead one to suspect inadequate drainage. Usually the exploring finger either through the wound or by rectum will locate the abscess which should be drained. Secondary abscess occurred in Case IV.

3. *Fecal fistula* also occurred in Case IV. It is not uncommon where there is extensive gangrene of the appendix. Secondary operation to close such fistula is rarely necessary as they usually heal spontaneously, although frequently after a long time. The fistula in this case was healed in three weeks.

4. *Inhalation pneumonia* may follow in cases associated with vomiting, especially if they are insufficiently or improperly etherized.

5. *Post-operative distention* is common in cases of extensive peritonitis. It is due to paralysis of the intestine from sepsis or trauma, and is one of the most serious conditions associated with peritonitis. Cathartics are useless and dangerous. Enemata should be tried, and if these fail, secondary enterostomy, an almost hopeless procedure, offers the only chance of relieving the distended bowel.

IV. DIFFERENTIAL DIAGNOSIS.

It must be remembered that in peritonitis, as in other diseases of children, the diagnosis may be difficult, because it must be made on objective symptoms.

1. *Lobar pneumonia.* — A right-sided pneumonia in a child may simulate appendicitis. The pain is sometimes referred to the abdomen, and the attack is ushered in by vomiting. The abdomen may be distended and tender, there may be voluntary spasm, and, especially if the pneumonic process be a central one, which is fairly common in children, with absence of physical signs in the chest, the diagnosis may be difficult or impossible to make. The possibility of pneumonia should always be borne in mind.

The initial symptoms may be similar in both conditions. The temperature in pneumonia, however, is usually high at the start, and the pulse, although rapid, is full and bounding. In peritoneal conditions, the temperature is not usually high and the pulse is of low tension.

Vomiting and pain may be present in both, and it must be remembered that the respirations are usually rapid in peritonitis, especially if the child is in much pain. The toxemia is more quickly overwhelming in peritonitis. Even early in the course of an appendicitis, the facies has the characteristic peritoneal appearance, and the child almost invariably lies with the knees drawn up.

Often the *general appearance* rather than any definite signs will determine the diagnosis.

Case VI is an illustration; acute onset, vomiting, abdominal pain, cough, rapid respirations (50), râles at base of right lung, slight general abdominal spasm and tenderness with moderate distention. The case was sent to the hospital with the diagnosis "Pneumonia, Abdominal." The symptoms and signs seem certainly to have justified the consideration of pneumonia in the diagnosis. The marked peritoneal facies and the decubitus led the writer to open the abdomen and an extensive diffuse peritonitis from a perforated gangrenous appendix was found. The writer has seen two cases of lobar pneumonia in children which were operated upon under the diagnosis of appendicitis. Both recovered.

The method of treatment to be pursued in such a case becomes a serious question. If the signs point to abdominal disease, and the general picture suggests it, it is probably safer to explore than to wait for more definite signs, even at the risk of opening a normal abdomen and giving ether to a child with pneumonia.

It should be remembered that death from lobar pneumonia is not common in children, but that peritonitis in children is *invariably fatal* if surgical interference is not undertaken *early*.

2. *Intestinal obstruction.* — In the later stages of an acute obstruction in a child, it may be impossible by examination to differentiate the condition from acute infectious perforating peritonitis. A mechanical obstruction may actually terminate in peritonitis, and peritonitis, especially if extensive, is usually accompanied by obstruction.

In either case the child presents much the same general appearance. The pulse is high and thready. The temperature may or may not be elevated, or may be subnormal. Vomiting, distention, paralysis of the intestine are common to both. Muscular spasm may or may not be present in either case.

The character of the pain in some acute obstructions is likely to be paroxysmal in the earlier stages. In the case of obstruction due to intussusception, there may be the history of bloody discharges. The localization of a mass or of areas of special tenderness in a much distended abdomen of a small child is a difficult matter. It may be easier to detect a mass by rectal examination than by abdominal examination and this procedure should never be omitted. Distention may be localized in obstruction, whereas it is more likely to be general in peritonitis. The sign is of doubtful value.

3. *Typhoid fever.* — Typhoid fever occurring in young children, as it sometimes does with acute onset, vomiting, fever, accelerated pulse and abdominal distention, has simulated appendicitis. Pain and tenderness, however, are unusual in typhoid of young children and the general appearance is one of apathy rather than of anxiety and restlessness. The Widal reaction may be an aid in the diagnosis. Typhoid fever could hardly be mistaken for an acute peritonitis.

V. TREATMENT.

Acute diffuse peritonitis is a surgical disease. The discussion of treatment in this paper is therefore limited to treatment by surgical measures. Operative treatment of acute diffuse peritonitis is directed to the attainment of three things:

1. The removal of the cause.
2. The cleansing of the peritoneal cavity.
3. The establishment of drainage.

1. *The removal of the cause.*— "The peritoneum will absorb or segregate by adhesion a certain quantity of infectious material, but if an indefinite supply is poured into the cavity by a necrotic perforated appendix, the peritoneum cannot take care of it." [1]

It is evident enough that operation will be of little use unless the source of infection is removed. There are certain very rare cases, however, in which the removal of the appendix by reason of its abnormal position may be attended by shock and trauma so great as to be unjustifiable. In such a case one must consider the relative danger of shock of operation with the danger of a continuance of the infection. The employment of drainage alone without the removal of the appendix may very rarely so decrease the amount of toxic material absorbed as to tide the patient over, and make a later removal of the appendix safer. To leave the appendix seems to the writer justifiable only in the avoidance of immediate death.

2. *Cleansing of the peritoneal cavity.* "The lethal issue of acute peritonitis is due to poisoning from toxins formed in and absorbed from the general peritoneal cavity." [2] The second object to be attained, therefore, is the thorough cleansing of the peritoneal cavity by the removal of such toxic material as is in a position to be absorbed. The procedure of cleansing the abdomen offers the greatest opportunity for the production of shock of any step in the operation. Therefore, that method should be selected which is attended with the least possible trauma. There is a wide divergence of opinion on what constitutes the best method. Those commonly employed are (*a*) evisceration and forcible "scrubbing" of the intestine; (*b*) sponging; (*c*) irrigation.

(*a*) The practice of pulling out loop after loop of bowel and forcibly sponging off the fibrin seems hardly justifiable. It is not only productive of tremendous shock, but by forcibly tearing up adhesions destroys nature's attempt to limit

[1] Lund: Boston City Hospital Reports, 1903.
[2] Mayo-Robson: Lancet, Dec. 29, 1906.

absorption. (*b*) Sponging, if it is to be thorough and the sponges are to be pushed into all the recesses of the abdomen, is attended with considerable friction to the inflamed serous membrane with consequent shock. Furthermore, it is questionable if it is as effective as flushing. (*c*) Irrigation seems to the writer to be the most commendable practice if properly carried out. With a soft rubber tube or a glass nozzle a stream of sterile water or salt solution can be gently made to reach nearly every part of the abdominal cavity, although, as Moynihan suggests, it may be necessary to make multiple incisions in order to reach every part of it. In a diffuse peritonitis from perforated appendix the practice of making a short counter-incision on the left side and irrigating from that side toward the incision over the original focus seems to the writer a logical one.

Antiseptics should never be used in irrigating the abdominal cavity as they irritate the inflamed peritoneum. The one object of irrigation should be to mechanically wash out whatever loose infected detritus exists, in the gentlest manner possible. It should be stopped when the washings come away clear for then all has been accomplished that is possible by this means. The practice of prolonged irrigation has been shown to be positively harmful on account of its exhausting effect on the patient. Some surgeons leave a considerable amount of salt solution in the abdomen, the object being to dilute the toxins and hasten their removal by absorption and to prevent adhesions. It is probable that more of it is immediately taken up by the dressings through the action of wicks and drainage tubes than by absorption. The chief value of this procedure seems to be that it starts the current of septic material into the dressings.

3. *Drainage.* — The question of the employment of drainage is one on which there is a wide divergence of opinion, both as to whether it should be employed at all and if so, in what manner. Murphy in his experiments on cats [3] has shown that no drain is effective as a drain of the general cavity for more than seventy-two hours. Clinical experience seems to show that the same condition prevails in draining the abdominal cavity of man. Even if effective for only a short time, the drains will cause much septic secretion, which would otherwise be in a position to be absorbed from the general cavity, to be discharged into the dressings.

An objection to drainage is that the presence of gauze or drainage tubes in the abdomen may distort the anatomical relations of bowel and omentum, and by the production of subsequent adhesions cause obstruction. This, however, seems to be of rare occurrence. Furthermore, the immediate emergency is the removal of the septic contents of the abdomen and not the preventing of future adhesions.

In the paper cited above, Murphy also showed that gauze and cigarette drains, *i.e*, gauze surrounded by rubber tissue, are effective as drains of the general cavity for not more than eighteen hours, while rubber dam and glass tubes were effective for about seventy-two hours, "the difference in time representing the difference in the stimulating effect of the various materials on the peritoneum."

It is the writer's practice in a diffuse peritonitis of small extent to use gauze or cigarette drains to the primary seat of infection in the hope of limiting the process. The pelvis which is usually the first region attacked by spreading peritonitis following perforation of the appendix is best drained by a glass or rubber tube. Drainage of the entire peritoneal cavity is impossible by any method, but the writer believes it is best accomplished by posture, *i.e.*, Fowler's position, when this does not prove exhausting.

The treatment of paralysis of the intestine associated with peritonitis. — Paralysis of the bowel sometimes amounting to obstruction is one of the most dreaded conditions complicating acute peritonitis. "Paralysis of peristalsis is due to inhibition, to toxic paralysis, and to paralysis of distention." [4] Moynihan points out [5] that after-distention has passed a certain point the intestines are not likely to regain their power of contraction, and when this power returns there is also a return of the rapidity of absorption of intestinal contents which are of an extremely toxic character. "There can be no question," he says, "that in many cases a free evacuation of the stagnant gas and fecal material is entirely an advantage," and he advises emptying the intestine as an almost routine practice.

If enterostomy is done secondarily after adhesions have begun to form between omentum and coils of bowel, it is more than likely that only one small loop of bowel will be drained and little if any good will be accomplished. Enterostomy, at the time of the primary operation, affords the better opportunity for draining the bowel unless later there are not extensive adhesions.

In cases in which distended bowel escapes from the abdomen during operation, an accident which should be avoided if possible, but which nevertheless does occur, there can be no doubt that it is safer to open the distended gut before trying to replace it. To crowd back distended coils of bowel is to increase shock. The opening in the bowel can be quickly closed with one or two sutures.

General remarks on the operation. — Moynihan, in speaking of the treatment of peritonitis, says, "I do not think that in any abdominal operations ever undertaken by the surgeon the need for speed combined with aptness can be greater than in these. Slow operations mean death from shock; imperfect operations mean death from a continuance of the acute inflammation. Perfunctory work and slow work are both out of place. It must be the surgeon's duty, therefore, to insure that every precaution is taken to lessen or avoid the incidence of shock, and to see that

[3] Murphy: BOSTON MEDICAL AND SURGICAL JOURNAL, Jan. 12, 1905.

[4] Greenough: BOSTON MEDICAL AND SURGICAL JOURNAL, May 19, 1904.

[5] Moynihan: Abdominal Operations, p. 84.

absolutely everything needed in the operation is ready before the anæsthetic is administered." [6]

These then are the essentials to the operation, — speed, thoroughness, the avoidance of trauma. If these be necessary in adults they are even more necessary in children, who stand long anæsthesia poorly and in whom the shock of handling the bowel is markedly greater than in adults.

A word should be said about *anæsthesia* in these cases. Local anæsthesia, whatever its virtues, if there be any, in adults, has no place in operating for this condition in children. The anæsthetic should be general and ether is probably the safest. Much is said about "primary ether" and "light anæsthesia." The employment of light anæsthesia in cases of peritonitis is, in the writer's opinion, more poetical than practical. With a patient half under ether straining the abdominal muscles, no operator can work with speed or efficiency. Especially if distended coils escape from the wound as they will in spite of precautions, if the patient is straining, much time will be consumed and much shock will be added in pushing them back. Safety, therefore, lies in having the patient in complete narcosis. The shock of complete anæsthesia for a short time is much less than the shock of the more prolonged manipulations necessitated by a light ether. The danger of inhalation from vomitus is also lessened if the patient is completely anæsthetized.

If the patient is vomiting, it is well to wash out the stomach before starting the ether.

VI. AFTER-TREATMENT.

The slow *administration of salt solution* by rectum after operation stimulates the circulation and the kidneys, thereby aiding in the elimination of toxins. It should be made a routine practice.

Postural drainage (Fowler's position) which is usually of value in the treatment in adults proved exhausting in the cases in this series, producing circulatory failure.

The patient should be kept warm, and stimulants, strychnine, brandy and coffee, should be administered as indicated. Persistent vomiting after operation is relieved by washing out the stomach. Vomiting was not a troublesome sequel in any of the cases in this series excepting the case complicated by acetone. Attempts should be made early, within three or four hours, to move the bowels by enemata.

Feeding. — To have brought the patient safely through the operation and to have successfully combated shock is to have accomplished much but not all. Success is quite likely then to depend upon after care and nursing. In order to provide the materials for the repair of the diseased tissues, and to restore the organism to its normal condition, the patient must be fed. Stimulation is not feeding. It is not uncommon to see a patient successfully operated on and doing well for a few days, whipped on by stimulants and then gradually die from exhaustion and lack of nourishment. The importance of early administration of food in children cannot be overestimated. Young children depend upon food for their resisting power. Deprived of food their resistance is rapidly lowered, for they have no reserve to fall back upon. It has been noted that one of the earliest symptoms is the refusal of food and they are consequently suffering from the withdrawal of it.

Fortunately it is true that almost all children take food readily about as soon as they are out of ether. In children with acute abdominal disease accompanied by vomiting, the vomiting usually ceases at once after operation, and food can be given by mouth. The fact that they will take it readily is, in the writer's opinion, sufficient evidence that they can assimilate it. It proved so in the cases here reported. It should be given in small amounts and frequently. If the patient continues vomiting, however, food should be withheld by mouth and given by rectum, although with severe distention and paralysis of the bowel, the power of absorption will be greatly decreased. If enterostomy has been done, feeding can be put directly into the bowel.

No general rule can be laid down for each case must be considered by itself. It is sufficient to remember the importance of giving the child nourishment and to give it in whatever way seems best adapted to the individual case.

VII. PROGNOSIS AND RESULTS.

Cases of diffuse peritonitis following appendicitis usually terminate in death unless operation is done. Even in cases which are operated, the mortality is high. The mortality given by different surgeons is extremely variable, ranging from 28% to as high as 90%. This variance in results is accounted for by the variance of opinion of what constitutes a diffuse peritonitis, and also on what kind of cases are included in the statistics. The mortality is necessarily higher when cases of extensive or true general peritonitis, many of which are actually moribund when operated on, are included. The percentage of mortality is correspondingly lower if cases of encapsulated abscess are included. In the writer's series of cases the mortality was 57%, and this included three cases which he has defined as extensive peritonitis and one case of multiple abscesses. The mortality will be greater in children than in adults for two reasons: They are more quickly overwhelmed and have less resisting power against a continued infection than adults, and they stand abdominal manipulations poorly. In general it may be said that the prognosis will depend upon,

1. The amount of general intoxication;
2. The extent and severity of the inflammatory process;
3. The degree of resistance of the individual, and, if operation is done;
4. Upon the skill and speed of the operator.

Extreme cases should not, in the writer's opinion, be refused operation. While the general appearance and the general condition furnish an almost positive indication of the outcome the exact conditions can only be found by opening

[6] Moynihan: Abdominal Operations, p. 80.

the abdomen. In cases with a considerable amount of distention, and with little abdominal pain and tenderness, and little or no spasm, the prognosis is most serious. The absence of spasm, pain and tenderness, as well as the presence of distention, the writer believes to be a part of a general paralysis due to toxemia. The absence of spasm was most noticeable in those children who were the sickest. The prognosis is invariably bad in those cases in which the bowels are moved with difficulty after operation, and in those patients who take food poorly.

It is generally agreed that a certain number of cases which come to the surgeon late overwhelmed with sepsis are bound to die in spite of any surgical effort. There are also cases which would presumably recover, which die from the shock of protracted or clumsy operating. To quote the words of Dr. Joseph A. Blake, of New York, "We have then simply to weigh the dangers of toxemia and shock against the dangers of continued infection, both systemic and peritoneal, from the appendix itself or the escape of its contents," and success, if it is to be attained at all, will depend upon judgment equal to the solution of this problem, and skill adequate to carry out such operative procedures as are indicated.

AN EXTRAORDINARY BLOOD.

PRESENCE OF ATYPICAL PHAGOCYTIC CELLS.

BY F. VAN NUYS, M.D.,
House Officer, Massachusetts General Hospital.

J. G., fifty-five, married, Russian Jew, butcher by trade, entered Dr. F. C. Shattuck's wards, Nov. 28, 1906. He complained solely of swollen feet and a tapeworm.

His family and his own past history are unimportant. His feet began to swell six months ago on the steamer from Europe. Ever since his arrival he has been weak, short of breath on exertion, and more than usually constipated. Physical examination showed a small, thin man with a chronic bronchitis, and a fairly compensated aortic regurgitation. His liver and spleen were enlarged, the former extending three inches below the costal margin, and the latter nearly to the umbilicus. In the region of the descending colon were two hard masses, egg-shaped, deep and immobile. These later became less distinct, but never wholly disappeared. His fingers were markedly clubbed and his arteries tortuous. He had slight edema of feet and at bases of lungs. Rectal examination was negative. He suffered no dyspnea and very little discomfort.

On the day of entrance, he passed nineteen feet of the beef tapeworm after one dose of castor oil. Stools never contained blood (guaiac test). Eggs of trichocephalus dispar were always present.

Urine and sputum were negative: the former never contained albumose, and the latter showed influenza bacilli.

The blood was examined daily with great care. To verify the extraordinary changes in leucocytosis, control counts were made from the other ear and fingers. Likewise differential counts of 1,000 cells were made about once a week to control the daily ones of 200 cells. Nearly all the work was done between 11 A.M. and 2 P.M.

The leucopenia which follows the erysipelas (see chart) suggests some relation between this man's blood and that of the leukemias.

During his stay of forty days he had a normal temperature, save during an attack of erysipelas from Dec. 14 to 26, when it reached 105°. Pulse and respiration were never remarkable. He left the ward in about the same condition as when he entered. He died unexpectedly Jan. 20. Autopsy was refused.

The characteristic feature of the blood is the presence of large, basophilic, phagocytic cells capable of ameboid motion, and unlike those of any other blood I have been able to discover in medical literature.

There are two varieties of these abnormal cells. One is a large mononuclear, much like an overgrown transitional cell, with granular, fragile, often vacuolated cytoplasm. The nucleus is large, well stained, oval or bean-shaped, often vesicular and sometimes containing a pale yellow-brown nucleolus (Wright's stain). This form of cell occurs in plaques resembling endothelium. When single it shows every degree of ameboid motion, and is frequently phagocytic. In such case, a smaller cell is so distended by a large leucocyte that only a thin shell of cytoplasm incloses the captive. That these cells have a chemotactic influence on leucocytes is proven by the occurrence of a single one surrounded by leucocytes. Very rarely are red blood cells or lymphocytes inclosed. The average size of thirty of this type of cell was 23 x 16.9 μ. In warm sodium metaphosphate solution I have seen them undergo ameboid motion.

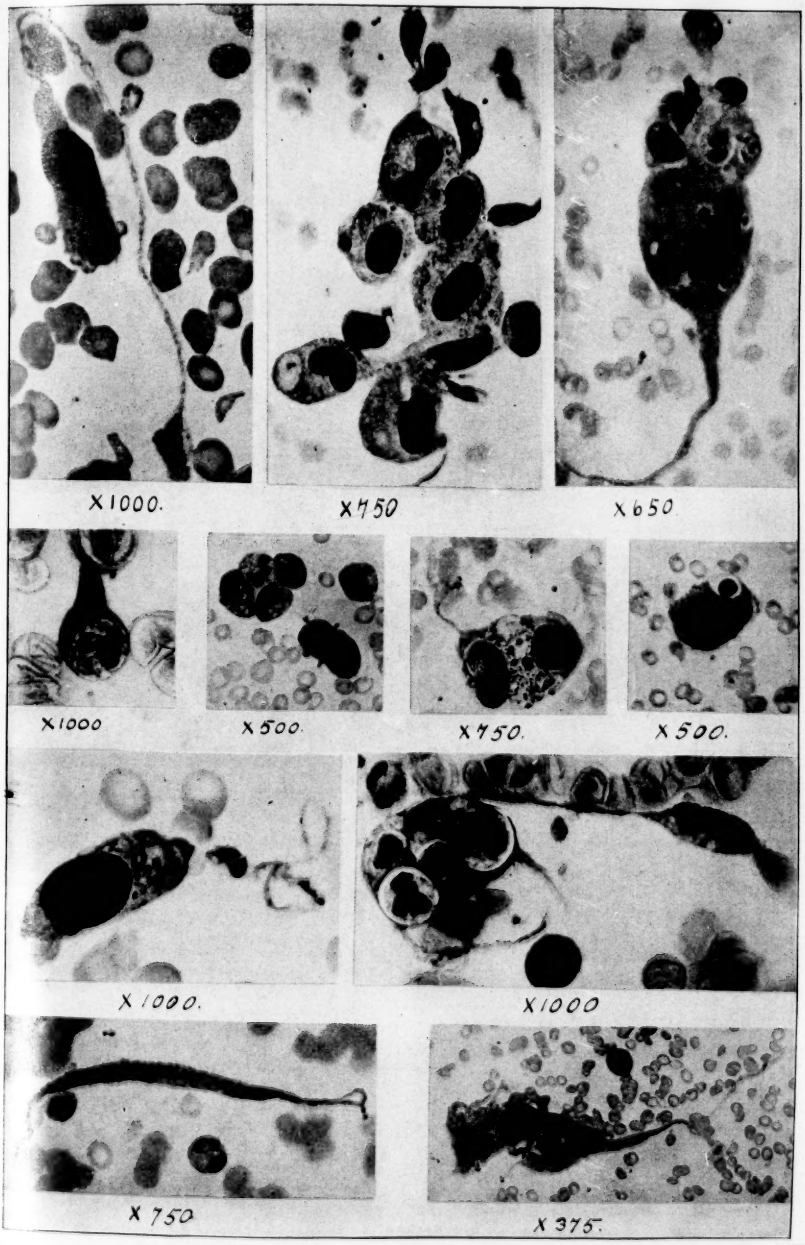
The other type of abnormal cell is a multinuclear, phagocytic, giant cell with long, fantastic streamers of protoplasm. These cells are rare, largely, I believe, due to the jelly-like fragility of their cytoplasm. The streamers cannot be artifacts because of their tapering graceful coils and the even distribution of coarse granules throughout the cytoplasm. In a few such cells, the granules suggest blood platelets forming or disintegrating.

The nuclei of the giant cells are exactly like those of the smaller variety. The cell membrane in both types is either absent or too delicate to be made out. Indeed, the two types differ only in size. Between them lie a number of large "whip-tail" cells which partake of the character of both.

In a few cases I have seen clearly the cell membrane of one of the smaller kind.

There is some evidence that the giant cells are relatively long-lived. The inclusions show all stages of decomposition, from the fresh, recently captured leucocyte to the ragged dot representing the remains of a previous victim. I believe also that the giant cell digests the leucocytes. Often it will stain as a shrunken blur contained in a clear space. However, this may signify an artifact, a shrinking of the protoplasm while staining.

These abnormal cells vary enormously in numbers from day to day. Dec. 5, they consti-

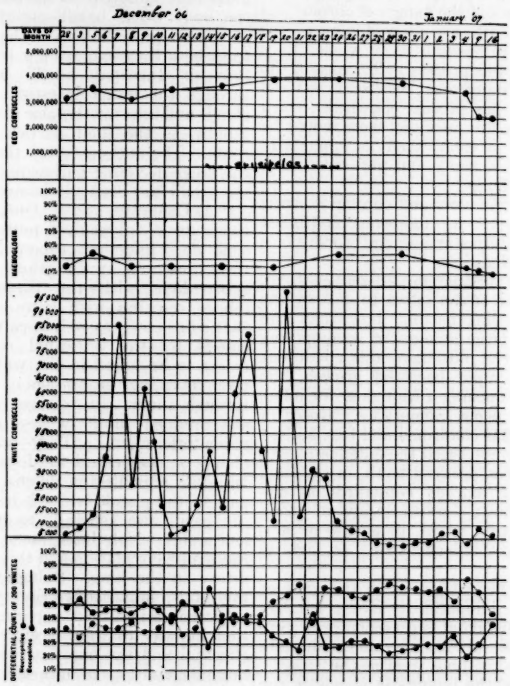


Photographs by L. S. Brown, Clinico-Pathological Laboratory, Massachusetts General Hospital.

tuted about 40% in a count of 1,000 cells. The lymphocytes made up about 5%. After the erysipelas they almost disappeared from the blood, but began to recur before death. In my classification as basophiles they come under the same heading as lymphocytes and transitional cells.

At no time were eosinophiles, mast cells or myelocytes seen. Normoblasts were found very rarely. There was no polychromatophilia, no stippling, and only slight poikilocytosis and moderate achromia of the red cells. Blood platelets were twice counted, 391,700 and 276,000 per c.mm., but the technique was not certain. The abnormal cells did not come from a tumor of the bone marrow. The absence of albumose in the urine strengthens the view, as do the blood findings of Schleip [1] and of Kurpjuweit.[2]

The morphology and the plaque formation strongly suggest that they are endothelial in origin. Undoubtedly, somewhere in the man's body a neoplasm was setting loose these cells into the blood, just where, it is hard even to guess. If the phagocytes arrived in the blood stream via the lymph channels, we might expect the inclusions to be lymphocytes. The enlarged spleen and mysterious abdominal lumps possibly hold the secret. The case might be considered a



specific gravity of the blood Dec. 13, was 1,044. The coagulation time (Brodie-Russell) was five and one half minutes.

On Dec. 20, when the white count was nearly 100,000, some of the sterile blood was placed on gelatine in a Petrie dish. Two other bloods, one normal and one of lymphatic leukemia, were likewise treated, as controls. In seventy-two hours there was no liquefaction of the gelatine. This would seem to indicate an absence of digestive ferments in the abnormal cells such as myelocytes are said to possess in myelogenous leukemia. Hence it is probable that these leukemia, meaning by this malignant disease of the blood.

There is at present in the male ward another Russian Jew with aortic disease, who has a very similar blood condition. Dr. W. B. Bartlett and I hope to report this case later.

I am indebted to Dr. F. C. Shattuck for the privilege of reporting this case and to Drs. R. I. Lee and F. B. Talbot for helpful suggestions, and to Mr. Brown for his care in taking the photographs.

[1] Schleip: Zeit. für klin. Med., Bd. 59, heft 2–4, p. 261.
[2] Kurpjuweit: Deut. Arch. für klin. Med., Bd. 77, s. 553.

CERVICAL ADENITIS WITH REFERENCE TO MOUTH INFECTION.*

BY FRANCIS D. DONOGHUE, M.D., BOSTON.

As the treatment of cervical adenitis involves both the treatment of cause and effect, it is desirable, in many cases, for the general surgeon to call for assistance upon his more highly specialized brother, the doctor of dental medicine.

In turn better results would be obtained by the dentist if he called on the surgeon early, to remove nasal obstructions (adenoids, polypi, etc.) which cause faulty breathing, before attempting to treat irregular teeth resulting from these conditions.

The importance of a perfect chewing apparatus for proper digestion and the danger of chronic pus processes in the mouth, are not well known.

If the medical profession, as a whole, fully appreciated that a pus process with caries of the alveoli is no less dangerous because it attacks insidiously than a pus process elsewhere, which gives warning from its position, there would be fewer end results to treat, such as apparently unexplained anemias, endo- and peri-carditis, or local glandular swellings.

The cases of gastric ulcer and chronic gastritis reported by Colyer,[1] as following continued pyorrhea, are certainly startling and worthy of a great deal of consideration.

The experiments of Sanarelli,[2] fifteen years ago, showed "the power of the saliva to destroy the ordinary pus-producing bacilli," but when the mouth contains a large amount of decomposing organic pabulum, the most favorable conditions are furnished for rapid bacterial growth, the resulting irritation opening a wide door for infection through the mucous membranes. Rosé[3] in recent experiment has confirmed and Drs. Miller[4] and Power[5] have emphasized these deductions.

Even adenitis from decayed teeth, in children, is accompanied by marked constitutional disturbance, as is shown by the study of blood change by Wile,[6] who found, in a case of submaxillary adenitis, "a leucocytosis as high as 43,000."

Enlarged and inflamed glands in the neck or elsewhere are *not* idiopathic. Every enlargement of a lymphatic gland is preceded or accompanied by a cause. It is, therefore, absolute folly to treat a gland without treating the cause.

Inflammations of the lymphatic glands in the neck are primarily caused by pyogenic infection.

So-called tubercular glands of the neck are not tubercular except in so far as the tubercle bacillus may be found, living or dead, in conjunction with pyogenic bacteria and the decomposition products caused by their action.

The growing agitation regarding the danger of tuberculosis and the increasing rigidity of medical inspection in schools, both make for a proper understanding of adenitis in children. It will be criminal if suffering from this condition condemns children to be shunned as lepers or segregated, as dangerous to their playmates.

* Read before the Harvard Odontological Society, at Young's Hotel, Sept. 20, 1906.

Even our preconceived ideas as to how the tubercle bacilli enter the body in cases of pulmonary tuberculosis appear, in view of recent investigation, to need readjusting.

For illustration I will quote a few of the more recent reports of investigations along this line.

ORIGIN OF PULMONARY TUBERCULOSIS.

Schlossmann and Engel[7] make out a strong case in support of the assumption that "tubercle bacilli ingested are taken up into the system by the same route as particles of food. The mesenteric glands are used for the passage through them of corpuscular elements, droplets of fat, etc., and their behavior during digestion indicates that they differ functionally from the other lymph glands in the body. The bacilli entering the mesenteric glands are passed along to the thoracic duct, and from here they can readily infect the lungs and bronchi. Ingested bacilli are able to pass through the intact intestinal wall, through the glands and into the thoracic duct as readily and as rapidly as the food particles follow the same route. The authors found the tubercle bacilli in the lungs in young guinea pigs a few hours after the bacilli had been administered in milk."

"A. Calmette and C. Guérin (Origine Intestinale de la tuberculose pulmonaire et mechanisme de l'infection tuberculose[8]), supplement their previous publications on experimental tuberculosis with the present article, which relates research with cows. The results show that adult cows, as well as calves, contract tuberculosis by the intestinal route, without any traces to be found in the walls of the intestinal tract revealing the passage of the tubercle bacilli through them. In younger animals the bacilli are retained more or less completely in the mesenteric glands. They may die off in the glands or may entail the formation of tubercles. In adult animals the defensive reaction on the part of the glands is much less pronounced, and the bacilli are generally swept along, with the leucocytes which have incorporated them, into the lymph circulation and through the pulmonary artery to the lung. Pulmonary tuberculosis in the adult, supposedly primary, is more often of intestinal origin. In experimental work, infection by way of the digestive tract is the most effectual and the one that conforms best to the normal conditions of natural infection."

A recent communication from the Copenhagen Institute of Pathologic Anatomy[9] continues Fibiger's research on primary tuberculosis in the digestive tract. "He found tuberculous lesions in 116 out of 213 cadavers, and in 13 they were primary in the digestive tract or connected glands. Among the 79 children, 25 were tuberculous, and in four of these the lesions were primary in the digestive tract. Ipsen has continued this research, the total material now comprising 600 autopsies. Tuberculous lesions were found in 311, and they were evidently primary in the digestive tract in 5.17% of the total cadavers, and in 10% of the tuberculous, that is, in 31 cadavers. Out of the 187 children's

cadavers, 58 proved to be tuberculous, and the lesions were primary in the digestive tract in 10, that is, in 17%. These figures are manifestly too low, as they do not include those in which the tubercle bacilli passed through the intestinal walls without leaving any traces. The circumstances indicated infection from cow's milk in some of the cases, and from association with consumptives in others."

Dr. Frederic M. Briggs, of Tufts Medical School, has, for a number of years, called attention to the fact that in pulmonary tuberculosis, lymph glands of the neck are rarely involved, and evidence that they had ever been in a condition of acute inflammation is usually absent.

In a somewhat extended study of adenitis of the neck at the Boston Dispensary, extending over a period of seven years, I have found extremely few cases where the source of infection could not be demonstrated, and the failure in a few cases was due, I think, to incomplete examination. In all cases, where the gland had not reached the stage of disintegration, cure was obtained by treating the primary cause.

"The glandular apparatus of the head and neck presents a considerable degree of development. It is, moreover, in the cervical region that the first glands appear in the course of phylogenic development," the outpost sentries, as it were, to give timely warning of the enemy of disease.

The general arrangement of these glands may be classified, according to Poirier,[10] as follows:

"They form at first a kind of circle, a true glandular collar, placed at the junction of head and neck. From this runs on either side a vertical chain which stretches underneath the sternomastoid, and accompanies the vessels and nerves as far as the junction of the neck with the thorax. This principal chain is flanked by several secondary chains of less importance."

This glandular circle is divisible into a number of groups named from the region occupied, and drain certain well-marked areas. When a general enlargement of all lymphatic glands is noticed, it will be found to be a manifestation of a general constitutional infection.

"There are six general groups of cervical glands:

"*First. The suboccipital group* draining the occipital portion of the hairy scalp, and their efferent vessels run downward and terminate in the highest glands of the substernomastoid group.

"*Second. The mastoid group* draining the temporal region of the hairy scalp, the inner side of the ear, and from the posterior surface of the external auditory meatus."

The suboccipital and mastoid groups become inflamed from the irritation of pediculi, hair-dye, dirt and pus-processes, like boils and pimples.

Third. The parotid and subparotid groups. These are composed of deep and superficial glands. "They drain the skin of the temporal and frontal regions, from the eyelids and root of the nose." (Küttner.[11]) "They may also receive vessels from the mucous membrane of the nasal fossæ and from the posterior part of the alveolar border of the superior maxilla."

"Subparotid glands are placed between the parotid and the pharynx, and are the usual starting point of latero-pharyngeal abscess. They drain the nasal fossæ, the naso-pharynx, and the Eustachian tube." These are enlarged when there is pus-producing process in any part of the territory which they drain, especially in cases of tonsillar infection.

Fourth. "*The submaxillary group* receive the lymphatics of the nose, the cheek, upper lip, the external part of the lower lip, almost the whole of the gums and the anterior third of the lateral border of the tongue. Their efferent vessels terminate in the glands of the deep cervical chain."

Fifth. "*Suprahyoid median glands or submental.* These include the glands contained in the triangle bounded by the anterior bellies of the two digastric muscles and the hyoid bone. They receive their lymphatics from the integuments of the chin, from the central portion of the skin of the lower lip, from the corresponding portion of the alveolar border of the inferior maxillæ, from the floor of the mouth, and possibly from the tip of the tongue."

Enlargement of the submaxillary and submental groups calls for consultation with the dentist. In these cases it is necessary, in making a diagnosis, to differentiate from inflammation or obstruction of the lingual and submaxillary glands and from hyoid cysts. As a rule, however, the infection atrium is evident and definite, and may be caused by a decayed tooth, irritating deposits of tartar, loose teeth (especially in adults), and ill-fitting caps or plates. More than 95% of all anterior glandular enlargements are explained by one of these conditions.

Sixth. "*The retropharyngeal* glands are placed behind the pharynx and laterally. They receive, apparently, almost all the collectors coming from the mucous membranes of the nasal fossæ, and the cavities in connection with them, and from the nasopharynx."

The enlargement of these glands points to infection through adenoids, to frontal or sphenoidal sinusitis, to ulcerations of the nose, as well as to catarrh accompanied by a muco-purulent secretion.

From the glandular collar just described, a chain of glands detaches itself on either side and descends with the deep vessels as far as the root of the neck, and are known as the deep cervical chains.

This is the most important glandular region of the system. It comprises fifteen to thirty glands on either side, and in certain pathological cases there appears to be a considerable increase in number. They receive most of the efferent vessels of the glandular collar, together with many direct vessels, and in these are seen the final state of infection when the interrupting glands and nodules have been overcome by the inflammatory process.

Admitted then that these lymphatics drain

well-defined areas, the first step in the treatment of an enlarged glandular station on the lymphatic route is to follow the line back to its source.

Syphilitic manifestations will be accompanied by general lymphatic enlargement. Cancer, occurring at an age when lymphatic glandular activity is at an ebb, will present, not so much an inflammation of the gland substance as a replacement of the gland by a definite new growth.

Without presenting the history of individual cases, I may state in a general way my conclusions, which are based upon a study of upwards of 300 cases:

1. Enlarged glands of the neck are not, primarily, tubercular, and bear the slightest relation, if any, to general or pulmonary tuberculosis.

2. They are due to a mixed infection of pus-producing bacilli.

3. They will quickly resolve if the source of the infection is removed before the glandular tissue becomes disorganized.

4. If disorganization takes place, the gland should be poulticed until the gland is practically liquefied. It should then be opened by a stab-puncture, emptied and drained by a "Briggs canula." [12]

5. Cases seen late, with a large mass of partially calcified and partially disorganized glands present, call for a thorough and extensive dissection.

The treatment by tonics, cod liver oil, iron, arsenic and the like, belongs to the age of "idiopathic inflammations," "slow fevers," and the "evil effects of the planets."

Treatment, other than local, should be food, fresh air and proper clothing.

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PRIMARY LIGATION OF THE VAS DEFERENS AND ITS ACCOMPANYING VESSELS BEFORE MANIPULATING THE TESTICLE DURING ITS REMOVAL FOR TUBERCULOSIS OR MALIGNANT GROWTH.

BY GEORGE WALKER, M.D., BALTIMORE, MD.,
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A RECENT and somewhat exhaustive study of tuberculosis of the genito-urinary organs, particularly in reference to the pathology of the disease and its experimental production, has convinced me that, during the excision of a testicle, the squeezing and manipulation necessitated during the removal of the organ is more than likely to force some tubercle bacilli along the healthy vas and into the abdominal portion or drive the organisms into the blood or lymph vessels and thus produce a general infection.

In order to eliminate this danger an incision should be first made high in the groin and the cord (vas and vessels) ligated. After this the incision can be carried lower, if necessary, into the scrotum, and the organ freed in the usual way. The vessels should then be cut at the point of primary ligation and the cord should be freed still higher up and gently pulled as far as practicable out of the external ring before it is ligated and cut. The lymph channels accompany the blood vessels and will be tied along with them at the primary ligature.

A similar danger exists in the usual operation for removal of malignant growths, and I would suggest that the same procedure be carried out so far as the primary ligation is concerned.

In carrying out this modification one certainly can prevent the occurrence of any infection. The danger may be slight, but in view of the fact that this precautionary measure in no way complicates the operation or renders it more difficult, it should be carried out in every case.

STUDIES IN PSYCHOPATHOLOGY.

BY BORIS SIDIS, PH.D., BROOKLINE, MASS.,
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(Continued from No. 12, p. 361.)

VII. CASE OF RECURRENT EPILEPTIFORM ATTACKS.

FROM the investigation of a case presenting a rich and highly-trained mental life we may, as a contrast, pass to one whose mental life and disaggregated subconsciousness are rather poor and meager.

M. L. is nineteen years of age, of a rather limited intelligence. He works as a shopboy amidst surroundings of poverty and leads a hard life, full of privations. He is undersized and underfed, and looks as if he has never had enough to eat. Born in New York, of parents belonging to the lowest social strata, he was treated with severity and even brutality. The patient has never been to any elementary school and could neither read nor write. His mathematical knowledge did not extend beyond hundreds; he could hardly accomplish a simple addition and subtraction and had no idea of the multiplication table. The names of the President and of a few Tammany politicians constitute all his knowledge of the history of the United States, the meaning of which is beyond his comprehension.

Family history is negative, as his parents died when the patient was very young, and he was left without kith and kin, so that no data could possibly be obtained.

Physical examination is negative. Field of vision is normal. There are no sensory disturbances. The process of perception is normal, and so also is recognition. Memory for past and present events is good. His power of reasoning is quite limited and the whole of his mental life is undeveloped, embryonic. His sleep is sound; dreams little, but wets his bed since his childhood. Digestion is excellent; he can digest anything in the way of eatable. He is of an easy-going, even gay disposition, a New York "street Arab."

The patient complains of "shaking spells." The attack sets on with tremor of all the extremities and then spreads to the whole body. The tremor becomes general and the patient is seized by a convulsion of

shivering and tremblings and chattering of teeth. Sometimes he falls down, shivering, trembling and shaking all over. The seizure seems to be epileptiform, only it lasts sometimes for more than three hours. The attack may come any time during the day, but is more frequent at night. During the attack the patient does not lose consciousness, he knows everything that is taking place around him, can feel everything pretty well; he only chatters violently with his teeth, trembles and shivers all over and is helpless to do anything. There is also a feeling of chilliness, as if he is possessed by an attack of "ague." The seizure does not start with any numbness of the extremities, nor is there any anesthesia or parasthesia during the whole course of the attack. With the exception of the shivers and chills the patient claims he feels "all right."

Patient was put into a deep hypnoidal condition very close to the hypnotic state. There was some catalepsy of a very transient character, but no suggestibility of the hypnotic type. Now in this hypnoidal state it came to light that the patient "many years ago" was forced to sleep in a dark, damp cellar where it was bitter cold. The few nights passed in that cold cellar he had to leave his bed, and shaking and trembling and shivering and chattering with cold he had to go to urinate, fearing to wet his bed, in expectation of a severe punishment. The patient, while in that intermediary, subwaking, hypnoidal state, was told to think of that dark, damp, cold cellar. Suddenly the attack set on, — the patient began to shake and shiver and tremble all over, chattering with his teeth, as if suffering from great cold. The attack was thus reproduced in the hypnoidal state. "This is the way I have them," he said. During this attack no numbness, no sensory disturbances, were present. The patient was quieted, and after a little while the attack of shivering and cold disappeared. Now the room in which the patient was put into the hypnoidal state was very dark, and accidentally the remark was dropped that the room was too dark to see anything; immediately the attack reappeared in all its violence. It was found later that it was sufficient to mention the words "dark, damp and cold" to bring on an attack even in the fully waking state. We could thus reproduce the attacks at will, — those magic words had the power to release the pent-up subconscious forces and throw the patient into convulsions of shakings and shiverings, with feeling of cold and chattering of the teeth.

Thus the apparent epileptiform seizures, the insistent psychomotor states of seemingly unaccountable origin, were traced to dissociated systems of a disaggregated subconsciousness.

VIII. RECURRENT STATES WITH TROPHIC DISTURBANCES AND EPILEPTIC ATTACKS.

Mrs. L., sixty years of age; married. Family history is good. Parents died of old age; brother died of apoplexy. Patient had one daughter who died some fifteen years ago.

The patient complains of sensitiveness of the stomach, of kidney trouble and of nervousness. During the attacks of nervousness she is restless, sleepless and is undergoing "death agonies." The suffering is so intense that, in spite of her religious scruples, the thought of suicide forces itself on her mind. She has an insistent fear of getting insane; the fear is so intense that she paces the floor night after night, like an animal in a cage. She is unable to eat and hardly drinks anything when the attack is on. If she attempts to eat, she rejects it immediately, as the stomach seems to be then extremely sensitive, so that she cannot retain anything. "While my brain is perfectly clear to take up any intellectual pursuit, if I attempt, for instance, to purchase anything in the way of apparel, my brain gets on fire and I walk the floor in a frenzy of excitement, not having the least idea as to the choice I should make. I am not able to sleep or eat, and what little food I eat does not digest. Although so disabled in judgment as to myself, my friends often come to me to aid them in their decisions in matters of apparel, because they value my judgment, which is perfectly cool, when I am deciding for them." Though the oculists do not find anything special the matter with her eyes, she complains of weakness and occasionally of complete darkness settling on the eyes, at first in the form of a mist and then, becoming denser, ends in total darkness, a form of functional amblyopia. She also complains of severe headaches, — the head feels at first dizzy, sore, painful, throbbing, and very hot, as if it were on fire. Patient also complains of trophic disturbances, of a dry skin, of swellings and rashes on the body. For years she has been suffering from those trophic disturbances which she terms "erysipelas." When the attack sets on, the patient becomes greatly depressed, — the hands and the feet are cold; the bowels are constipated; there is irritation of the bladder; tinnitus aurium is present; there is a feeling of pressure in the head with dreams of a distressing character; then the headache grows in severity and becomes throbbing. After a time trophic disturbances appear, such as rashes in the form of "pimples and swellings," with edema of the legs, of hands and eyes. Now and then the patient has seizures of coughing spells and has insistent fears of some impending lung troubles. Occasionally she has epileptiform attacks with slight tonic and clonic convulsions, accompanied with unconsciousness or semi-consciousness. Some years ago she used to have "attacks of helplessness" and even of complete paralysis. She also suffered from tingling sensations in the extremities, "numbness all over," becoming fully anesthetic over the whole surface of the body.

An examination of the patient shows her to be greatly emaciated; poorly nourished; skin is dry and crackling. There are a few macules and papules, a few wheals and the remnants of dried-up vesicles and blebs. Near the margin of the mucous membranes some fissures and excoriations are found in various stages of healing and crusting. The tongue is coated, furred and there is a heavy smell from the mouth. The lungs are in good condition. The heart-beat is irregular, aortic second sound is slightly accentuated. Patellar reflexes are greatly exaggerated. The eyes do not accommodate well, — the left eye is somewhat defective in convergence during the act of accommodation. Pupillary reaction is rather sluggish. The tympanic membrane of the left ear is slightly thickened and hearing is defective on the left side. She also suffers occasionally from noises, "buzzing in the head" and dizziness. Motor activities and sensitiveness to all forms of sensory stimulations are in good condition. No edema could be found, except a slight puffy condition below the eyes. Several examinations of the urine showed the latter free from any trace of albumin. Patient can see well, but she gets easily fatigued when reading or sewing, — a darkness then comes over her and everything seems to be enveloped in a mist which is getting heavier and thicker. Field of vision is fully normal. No reversion

of the color field is present. Memory for present and past events is excellent. Attention is very good, but she cannot keep up her concentration of attention for any length of time; she then begins to complain of fatigues and sometimes gets an attack of severe headache, with all the symptoms associated with it. Intellectual powers are well preserved and, in fact, are quite vigorous. Patient is well educated, writes well and has a deep interest in philosophical, especially in theological, problems. Hypnagogic and hypnapagogic hallucinations are well developed; field of vision on closure of the eyes is very rich in colors. Sleep is greatly disturbed, she suffers from insomnia, and when she falls asleep she has quite elaborate dreams, often of a distressing character. Once she had a visual hallucination of her daughter, and another time she had the peculiar hallucination of the reality of the presence of her daughter, who did not appear to the "bodily senses," but to the "inner mental vision," a form of pseudo-hallucination. She has a yearning after something, she does not know what, and is in constant fear of losing her mind. The fear of insanity is occasionally so intense that she suffers agony. Her general mood or affective state is one of great depression and misery.

The hypnoidal states revealed the following data: When at the age of five, the patient happened to see an insane woman in a maniacal condition. The image of that woman never left the patient's thought, conscious or subconscious, so deeply was her mind impressed with that event. She was greatly frightened and the thought kept recurring: "Do little girls get insane?" Since that time she became possessed by the fear of insanity. In her ardent imagination she actually felt that she was getting insane.

When asked about her dreams, the patient was unable to tell anything, but in one of the deeper hypnoidal states she remembered that she used to dream about that insane woman standing near her bed, bending over her and even touching her. Many times she was in such an agony of fear that she wanted to cry out, but was unable to do it. When she woke up, she cried in great terror. When the patient gave birth to her child, she was afraid the child would get insane; many a time she even had the feeling as if the child was insane. Thus the fear of insanity is traced to an experience of early childhood, an experience which, having become subconscious, is manifesting itself persistently in the patient's consciousness.

The patient's parents were very religious, and the child was brought up not only in the fear of God, but also in the fear of hell and the devil. Being sensitive and imaginative, the devils of the gospel were to her stern realities. She had a firm belief in "diabolical possessions" and "unclean spirits"; the legend of Jesus exorcising in the country of the Gadarenes unclean spirits, whose name is Legion, was to her a tangible reality. She was brought up on brimstone and pitch, with everlasting fires of the "bottomless pit" for sinners and unbelievers. In the hypnoidal state she clearly remembered the preacher who used every Sunday to give her the horrors by his picturesque descriptions of the tortures of the "bottomless pit." She was in anguish over the unsolved question: "Do little sinner-girls go to hell?" This fear of hell made the little girl feel depressed and miserable and had poisoned many a cheerful moment of her life.

What a lasting effect and what a melancholy gloom this fear of ghosts and of unclean spirits of the bottomless pit produced on this young life may be judged from the following facts: When the patient was about eleven years old, a young girl, a friend of hers, having noticed the patient's fear of ghosts, played on her one of those silly, practical jokes, the effects of which on sensitive natures are often disastrous and lasting. The girl disguised herself as a ghost in a white sheet and appeared to the patient who was just on the point of falling asleep. The child shrieked in terror and fainted. Since that time the patient suffered from nightmares and was mortally afraid to sleep alone; she passed many a night in a state of excitement, frenzied with fear of apparitions and ghosts.

When about the age of seventeen, she apparently freed herself from the belief in ghosts and unclean powers, but the fear acquired in her childhood did not lapse, it persisted subconsciously and manifested itself in the form of uncontrollable fears. Unless specially treated, fears acquired in childhood last through life.[5] She was afraid to remain alone in a room especially in the evening. Thus, once when she had to go upstairs alone to pack her trunks, a gauzy garment called forth the experience of her ghost-fright, — she had the illusion of seeing a ghost and she fell fainting to the floor.

When about the age of eighteen, she began to teach mathematics in a school and worked very hard. Being ambitious to advance, she studied assiduously after she was through with her school duties; she worked hard and worried much over her prospects of advancement. It was from that period that her headaches date as well as her first attack of nervous prostration. When she got married, the duties of housewife and of social relations made life still more strenuous. Motherhood served only to increase the nervous strain, all the more so as her child was constantly ailing up to the age of five. After years of devotion and of motherly self-sacrifice she succeeded in bringing up her daughter, who became the very soul of the patient's being. What a fearful blow it must have been to this frail woman when her only daughter, in the full bloom of her young womanhood, at the age of twenty, began to ail, to sink in health, and was declared an incurable case of tuberculosis. Day and night did the unfortunate mother watch in anguish over her only child. She actually lived through the distressing cough, the gastric and trophic disturbances, the loss of appetite, the nausea, the inability to retain food,

[5] "Every ugly thing," says Mosso, the great Italian physiologist, "told to the child, every shock, every fright given him, will remain like minute splinters in the flesh, to torture him all his life long.

"An old soldier whom I asked what his greatest fears had been, answered me thus: 'I have only had one, but it pursues me still. I am nearly seventy years old, I have looked death in the face I do not know how many times; I have never lost heart in any danger, but when I pass a little old church in the shades of the forest, or a deserted chapel in the mountains, I always remember a neglected oratory in my native village, and I shiver and look around, as though seeking the corpse of a murdered man which I once saw carried into it when a child, and with which an old servant wanted to shut me up to make me good.' Here, too, subconscious experiences have persisted throughout lifetime."

the weakness, the helplessness and the complete prostration of her daughter who did her best to cheer her poor suffering mother who, with an aching heart, eyes blinded with tears and with a mind distracted by anguish and anxiety, felt her head in a whirl; choking sensations, darkness, fainting spells began to seize on her, spells of darkness against which she struggled in throes of convulsions. In one of the hypnoidal states I happened to press on the throat, accidentally producing choking sensations, when the patient began to feel faint and, losing consciousness, became convulsed with epileptiform tonic and clonic contractions. The state of unconsciousness, of semiconsciousness or of " Dämmerzustände," lasted about twenty-five seconds, the patient coming back with a deep sigh and with no memory of what had taken place during the attack. I was thus enabled to reproduce at will the original attacks.

The patient told me that with all her "faith in the Lord" she rebelled against " Providence." " I have blasphemed the Lord, — He is worse than a loving mother." The daughter passed away in the arms of the mother, who from that time on had been living through the disease of her child with all the symptoms of trophic disturbances and death agony, but much more complicated and intensified by the agony which she herself had then undergone. Dress, receptions, visits became painful to her, because of the daughter with whom all those enjoyments have been associated. The whole life experience of that period of anguish has left but a vague trace, has apparently lapsed from the patient's consciousness, but has really persisted in her subconsciousness and has been forcing itself with all the more vehemence on the patient's personal self. All those symptoms, however, entirely disappeared during the treatment. Thus the whole symptom-complex of the disease could by means of the hypnoidal states be traced to dissociated, submerged subconscious experiences recurring in the form of attacks of insistent mental states or of recurrent psychomotor states.

IX. PERSISTENT FEARS WITH ATTACKS OF HEMICRANIA.

Mr. D., a young man of twenty-five. Born in Poland. Family history could not be obtained, but as far as it could be ascertained the parents as well as the brothers and sisters are all well.

An examination of the patient reveals nothing abnormal as far as physical and mental functions are concerned. Patellar reflex is but slightly exaggerated. There are no sensory, no motor disturbances. Hypnagogic and hypnapagogic hallucinations are rich and varied. The emotional side is fairly well endowed. He is a level-headed fellow, but unusually timid.

The patient complains of severe headaches, often setting on gradually and preceded by a feeling of indisposition, depression, vertigo and distress. During the attack there is hyperesthesia to touch, pressure, temperature and to visual and auditory stimulations; the body feels cold and ataxic, as if paralyzed. The patient shivers and looks very pale. The periphery of the extremities is bloodless, cold; the face is very pale, the lips are cyanotic, while the head throbs violently. The cold experienced is so intense that the patient has to wrap himself in many blankets, as if suffering from an onset of malaria.

Fears have a strong possession of the patient's mind. He seems to suffer from claustrophobia, — he is afraid to remain in a closed place at daytime and especially at night, but he is not afraid to be on the street, even when it is very dark. When he has to remain alone at night, he is in agony of fear and cannot go to sleep. Every passer-by is regarded as a robber or murderer, and he quakes at the least noise. When walking in the house in the dark, he has the feeling as if some one is after him, and occasionally even experiences the hallucination of some one tugging at his coat. He is mortally afraid of the dead and shuns a funeral, not on account of superstition; in fact, he is ashamed of it, but on account of some insistent fear that takes possession of him in spite of all his efforts to control it. He has a feeling of weakness almost of prostration, not unmingled with some unaccountable fear, when he has to visit a cemetery, even if it be in broad daylight and in the company of many people. Any strange object he suddenly comes across in the dark will give the patient the shivers. This fear is very intense, when he happens to notice in the dark a moving object. Besides the claustrophobia, the patient has also a fear of dogs, a kind of kynophobia, so to say, if we may be permitted to use such a term. The fear is irresistible and is almost as involuntary as a reflex.

The patient's sleep is restless and disturbed by many distressing dreams and nightmares. He dreams of fires, of great conflagrations in which he is in great danger and cannot find his way out of buildings enveloped in sheets of flame and dense smoke. He dreams of being captured by robbers and is in danger of being killed or even of being skinned alive. Occasionally he dreams of his parents captured and assaulted by brutal, terrible looking men. Thus in one of his recent dreams he saw his father seized by soldiers, imprisoned and condemned to be hanged. The patient often moans in his sleep, cries and wakes up with tears streaming down his cheeks. The anguish experienced in his dreams is intense. So vivid is the dream-consciousness that the patient cannot get over his anxiety for hours and he is sometimes affected by it throughout the next day. Occasionally the patient dreams that wild animals, such as wild dogs, attack him and he wakes up in great fright. So intense is the dream hallucination that the fear persists long after he is awake, and he feels as if he has actually gone through a real experience.

An investigation by means of the hypnoidal or intermediate states brought forth out of the patient's subconscious life the following experiences: When a child of three, the patient lived with his family in a small village near a large forest infested with wolves. In one of the intermediary states a faint memory, rather to say a vision, struggled up, — a vision of wolves and dogs. Some one cried out: " Run, wolves are coming! " Crazed with fear, he ran into the hut and fell fainting to the floor. It turned out to be dogs instead of a pack of wolves. It is that fright in early childhood which has persisted in the subconscious and, having become associated with subsequent experiences of attacks of dogs, has found expression in the patient's consciousness as an almost instinctive fear of dogs.

When about the age of four, the patient went through another experience which left an indelible

impression on his subconsciousness. One winter night a fire broke out in the house and the little boy had to be taken out, shivering with fright and cold, into the open air of a frosty night. When about the age of eight, the patient, then living in a small provincial town, experienced another similar shock. A great conflagration broke out in the street where the patient lived. The fire, carried by the wind, spread rapidly, so that his house was soon enveloped in flames and smoke. The patient was so terrified that he was almost in a trance. He seized a saltcellar, rescuing it from the flames, and fled. For six hours his parents lost all trace of him. He himself could not remember where he had been. It was afterwards found that he kept on running through the streets, crying: "Fire, fire!" He was found by a relative of his who took away from him the saltcellar and quieted his agitation. Subconsciously the patient kept on living through those very experiences in his dreams. The experiences lapsed from his consciousness, but persisted in his subconsciousness and found expression in his dream hallucinations, which appeared as real experiences to his subconsciousness. The content of the dreams is varied, largely depending on the sensory content of the total moment-consciousness, but it refers to the same dissociated systems of the patient's child-life.

But why was the patient in such abject terror of dead people? This found its answer in the experiences and training of his early life and especially in a peculiar incident experienced by the patient in his childhood. When a very young child, the patient heard all kinds of ghost stories and tales of wandering lost souls and of spirits of dead people hovering about the churchyard and burial grounds; he heard grewsome stories of ghouls and of evil spirits inhabiting deserted places, dwelling in the graves of sinners and the wicked. He listened to stories of haunted houses and of apparitions stalking about in the dark, coming to visit the living in some lonely deserted places, especially in the stillness of the night. His social and religious environment has been saturated with the belief in the supernatural, as it is usually the case among the Catholic populations of Eastern Europe. We should not wonder, then, that an impressionable child brought up under such conditions would stand in mortal fear of the supernatural and especially of the dead. Now when he was about the age of nine, his mother noticed some prominences on his right chest; she was afraid that they might develop into something serious, requiring, possibly, hospital treatment and even a surgical operation, which the popular prejudice does not favor. It was then suggested to the mother that the hand of a dead person possessed the virtue of blighting life and of arresting all growth, and would therefore prove a "powerful medicine's charm" for undesirable growths. It happened that an old woman in the neighborhood died; the little boy was taken into the room where the dead body was lying and the cold hand of the corpse was put on the child's naked chest. The little fellow fainted away in great terror. One can well imagine what a shock such an experience was to the child. It is from that time that his frightful dreams date. The fear of dead people became subconsciously fixed and manifested itself as an insistent fear of the dead and, in fact, of anything connected with the dead and the world of spirits.

It is to the same period that the patient refers the onset of his headaches. Another experience, however, entered here and helped to form the complex manifestations of the dreams and the headaches. The patient had hardly recovered from the shock of the "dead hand," when he had to pass through a still more severe experience. A party of drunken soldiers stationed in the little town invaded his house and beat his father unmercifully, almost crippling him; they knocked down his mother, killed a little brother of his, and he himself, in the very depth of a winter night, dressed in a little shirt and coat, made his escape to a deserted barn, where he passed the whole night. He was nearly frozen when he was found in the morning, crouching in a corner of the barn and shivering with fear and cold. From that time on the headaches manifested themselves in full severity, with deathlike paleness and intense cold of the body.

Such incidents have been found in other similar cases, coming from that part of the country where social life is still primitive and is unfortunately disturbed by unfavorable political conditions. However this may be, one thing stands out here clear and distinct, and that is the fact that the various recurrent psychomotor states, otherwise unaccountable, could be referred, by means of the hypnoidal states, to dissociated systems having their origin in a disaggregated subconsciousness.

(To be continued.)

Clinical Department.

CANCER OF THE VULVA.

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Visiting Gynecologist, Carney and St. Elizabeth's Hospitals.

PRIMARY cancer of the vulva is rare. It assumes the form of epithelioma. Death usually ensues in one to three years. It usually occurs between the ages of forty-five and sixty. The usual course of the disease is up to the vaginal inlet, but not beyond it. Then it usually jumps across to the opposite side; if not checked, the growth always extends up into the groin. The usual experience is that the disease recurs promptly after operation; the glands in the groin soon become involved, and the patient dies as a consequence of the recurrence.

Dr. J. B. Hall reports operating on one case four times. The fifth time he removed the recurrence by an extensive operation, and it had not returned in two years.

Dr. Chas. P. Noble reports having seen 4 cases,

—3 were operated on. Two died from recurrence of the disease, and one was well one year after operation.

April 12, 1899, Mrs. J. A. P., sixty-nine years of age, consulted me for a growth on the left labium, which, she said, had been there for seven or eight years, —but only during the past year had it given her any trouble. During the past year there had been more or less pain through the labium, and of late it had kept her awake nights. She said the growth had not increased in size, and there had been no discharge.

She had never been pregnant; menopause took place at forty-nine years of age. General health excellent.

An examination disclosed a diseased condition involving the whole labium majorum and clitoris, extending somewhat into the vagina, and up around the urethra on the left side.

April 15, 1899, the left labium majorum, clitoris and three fourths of an inch of the urethra were removed. Pathologist's diagnosis: Epidermoid carcinoma of labium and vulva, with metastases outside of excised portion.

The wound healed by first intention. There was no trouble during micturition.

May 2, 1906 (seven years after first operation), she again consulted me. For five years she had had absolutely no trouble, but during the past two years the "same disease" had begun on the right labium. There was soreness and pain and some discharge with a bad odor. It was found that the whole of the right labium was involved and there were enlarged glands in the right groin.

May 7, 1906, the right labium was excised and glands in the right groin removed.

Pathologist's diagnosis: Epithelioma of the labium, and inguinal lymph nodes. The wounds healed without any trouble.

Jan. 25, 1907, the patient wrote that all had gone well with her since the operation, and that she had suffered no inconvenience whatever.



Upper cut. Thermocautery at shaded line, burnt even to blade of forceps, amputating appendix.
Lower cut. Purse string ligature; loops and free ends. Inversion forceps applied.

New Instrument.

A METHOD OF TREATING THE APPENDICULAR STUMP.

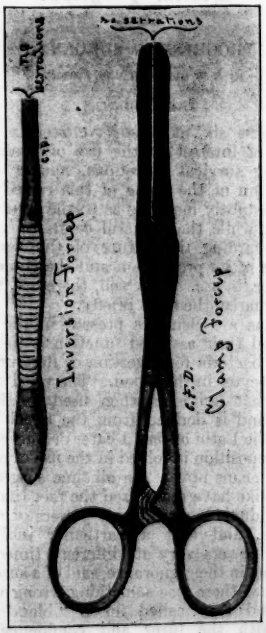
BY C. F. DENNY, M.D., ST. PAUL, MINN.

The method herewith given, while not original in its entirety by Dr. S. S. Hesselgrave, of St. Paul, Minn., whom I first saw use it, and have since used it myself, has so much to recommend it that no apology is offered for its publication. It commends itself in three ways: (1) Simplicity. (2) Rapidity. (3) Asepticity.

In all interval operations it can be used. In cases where the appendix forms a pus tube or sac it is useful. It is not recommended in abscess cases.

TECHNIQUE.

The appendix having been freed, and meso-appendix ligated, a purse-string suture is applied in the cecum in such a way that two loops are left, which with the two ends at the starting point divide the circle about the appendix into three



equal spaces. The clamp shown in cut, which has no serrations, is now applied to the appendix about one-half inch from the cecum. A moistened gauze compress is placed between the clamp and the cecum. A thermocautery is now applied to the appendix on the distal side of clamp severing it close to the blades. The gauze is now removed, and clamp unlocked. A thin parchment-like stump is left, bloodless, and crushed so that it completely seals the opening. The cut shows these loops (*a*), (*b*) and the free ends at (*c*). The clamp is shown *in situ*. The stump is now grasped with the inversion forceps shown in the cut. These are nonserrated allowing their easy withdrawal. The assistant holds the two loops one in each hand while the operator holds the two ends in one hand, and invaginates with the other. Gentle traction on loops, and ends, steadies the bowel, and creates a triangular space into which the stump is easily invaginated. The ends are gently pulled until the loops disappear, the invagination forceps are removed and the ends of suture are tied. The clamp is a Furgeson forcep with the serrations removed. Suture material has been No. I Ramsey Co. formalized pyoktanin catgut. The rest of the technique consists in a sero-serous suture covering the purse string, and the denuded surface of the meso-appendix.

Medical Progress.

PROGRESS IN SURGERY.

BY J. G. MUMFORD, M.D., BOSTON.

THE OPSONINS.

THE past six months have seen a marked increase of interest in the use of opsonins for combating surgical infections, and a growing appreciation of the value of this remedy. One hears constantly inquiries as to the results being obtained, while there is still confusion in many minds regarding the nature of the agent, the technique of its production and the clinical indications for its use. It is well, therefore, to recall and summarize the facts briefly.

Opsonins are elements present in the normal blood, and their assigned function is to prepare invading bacteria for ingestion or destruction by the phagocytes in the blood. The word *opsonins* is somewhat fantastic when used in this connection, and is derived from the Greek ὀψωνέω, through the Latin *obsono*, I cater or purvey.

The proposition involved in the use of opsonins is by no means novel. In all time surgeons and laymen alike have recognized the fact that different individuals have different powers of resisting infections, and that a particular individual's resisting powers vary at different times. Formerly men, in their ignorance, said of a susceptible person that there was something wrong with his blood, and they called for a "blood tonic." Later, with the furor and confidence which resulted from the introduction of antiseptics, the condition of the individual patient came to be little regarded by the unthinking. Now, the trend of surgical opinion, instructed by our better understanding of surgical physiology, is turning us back to a more careful study of "condition" in individual cases. We see that certain patients are poor subjects for surgical operations because their resistance is lowered for specific infections; we have learned that wounds suppurate, or heal slowly, for the same reason; we are able in the case of certain obscure internal infections to arrive at the correct diagnosis by a study of particular elements in the blood, so that we are enabled in many instances to remedy these peculiar faults of "condition"; and it is especially interesting to observe, in connection with the subject of this article, that individual patients are found to have their resistance lowered for special invading organisms, so that special measures must be taken in each case to fortify that patient's resisting powers. We cannot roughly immunize with an unlimited amount of living serum, as did Jenner against smallpox, but we must use carefully graded amounts of our remedy so as to meet individual conditions. Coupled with the thought of thus fortifying the blood to combat infections, we are recognizing, as clinicians and dealers in surgical therapeutics, that the quantity as well as the quality of the blood delivered at the point of invasion has an important bearing on the progress of an infection. A congestion of the affected part favors the inflammation which is resisting the invading organisms. This explains the value of poultices, blisters and other counterirritants, and is the basic idea in the Bier treatment by passive hyperemia. Briefly stated, we encourage an abundant blood and lymph flow through the infected area, and we aim to supply to that blood a supplementary element which shall enable it more vigorously to rout the bacteria. If necessary in the opinion of the surgeon, we supplement these measures by appropriate operations.

The use of opsonins deals with the second portion of this rather complex proposition. Most readers doubtless are familiar with the names and achievements of Wright and Douglas,[1] the English investigators who developed further and brought to a practical working basis our knowledge of blood serum as it affects phagocytosis by leucocytes.[2] This work was published in 1903. Previously Metchnikoff and his followers had taught that the leucocyte is the only element in the blood, actively concerned in the phagocytosis of micro-organisms. Wright and Douglas demonstrated that leucocytes alone do not suffice for this germ-exterminating process, — the mere presence of leucocytes does not check a bacterial invasion; some other element in the serum is needed, that the leucocytes may be stimulated to beneficent activity. This other element is never entirely lacking, but it must be present in normal amount

[1] Proc. Roy. Soc., vol. lxxii, p. 357.
[2] H. B. Potter, N. E. Ditman and E. B. Bradley: The Opsonic Index in Medicine, Jour. Am. Med. Asso., Nov. 24, 1906.

if the phagocytosis is to be effective. "The substance so essential to phagocytosis does not act upon the leucocytes (as a stimulant to the leucocytes for example), but it combines with the micro-organisms and prepares them for phagocytosis."[3] This substance, or these substances, are the opsonins. It appears that they are carried in the lymph to the field invaded by micro-organisms, and that there they unite chemically with them, by which uniting process they render the organisms a ready prey for the leucocytes, so that a patient's power of resisting bacterial invasion is measured by the amount of opsonins present in any particular serum rather than by the unstimulated vital activity of the leucocytes.

These premises having been established, the practical surgeon asks how opsonins in sufficient amount may be supplied to a patient who lacks them. What are they, and how artificially may they be secured and employed? Wright and other investigators have shown that the desired substances, the opsonins, are produced by bacteria themselves; that in the case of every bacterial invasion a certain proportion of opsonins is produced, but that by a simple but ingenious laboratory technique, additional opsonins may be manufactured, so to speak, and may be employed as *vaccines* to supplement the deficiency in the patient's circulation.

Observe this important fact, that each form of infection requires for elimination its own appropriate opsonins. One may find in a given case a normal quantity of the opsonins required to combat a tuberculosis, but these are of no value if the patient be suffering from a staphylococcus invasion, with a diminished supply of the appropriate staphylococcus opsonins.

Briefly, then: in order to secure the proper opsonins, one takes cultures from the wound or discharges, sterilizes them at a temperature of 60° C., and from this product secures a vaccine to be used in the particular case.[4]

What are the indications for the use of opsonins, and how shall one measure the amount and frequency of the dosage? This is an interesting question, and brings us to a brief statement of Wright's much misunderstood and much quoted *opsonic index*.

The *opsonic index* of a given patient is the relation between the opsonins present in his serum and the opsonins present in the serum of a normal individual. For example, if we wish to measure the quantity of opsonins in the blood of a person suffering from boils, which are almost always due to the staphylococcus pyogenes, we need:

1. A few drops of blood from the patient, and a few drops from a normal individual. (From each sample of blood we can obtain easily serum enough.)

2. An emulsion of staphylococci in salt solution. (This may be prepared from a culture taken from the patient's own boils, or we may have it in stock.)

3. Leucocytes washed free from their plasma.

We mix equal quantities of the *patient's* serum with the staphylococci and the leucocytes, and place the mixture sealed in an incubator at 37° C. We then make another mixture of the blood from the *normal* individual with staphylococci and leucocytes, and place this mixture in an incubator. Both mixtures are incubated for fifteen minutes. The remainder of the investigation consists in examining under the microscope stained smears of these two mixtures, and observing the comparative action of the leucocytes upon the staphylococci in the two cases. If the mixture from the suspected patient shows leucocytes ingesting the same number of staphylococci as are ingested by the leucocytes in the normal mixture, we conclude that the patient's opsonic index is normal; but if the ingestion of leucocytes varies in the two specimens, we compare by figures the numbers ingested by the two sets of leucocytes and thus construct the patient's opsonic index. For example, taking the specimen of *patient's* serum: suppose we observe in it 40 leucocytes taking up 80 staphylococci,— we conclude justly that each leucocyte on the average takes up 2 micro-organisms. That is to say the "phagocytic index" of these leucocytes is 2. Observing now the *normal* serum mixture we see that 40 of its leucocytes take up 160 micro-organisms; from which we conclude the normal phagocytic index to be 4. From these two figures we can write the ratio, phagocytic index of the first specimen is to phagocytic index of the second specimen as 2:4; or, as 0.5:1.0.

For the sake of convenience the standard normal opsonic index has been set at 1.0; therefore the opsonic index of the patient under investigation is 0.5; and observe that this is his opsonic index for staphylococcus. So far as we know up to this point his opsonic index for other infecting organisms may be 1.0 or higher.

The value of the opsonic index has been questioned, and indeed there has seemed to be good reason for such questioning, because there is abundant opportunity for error through imperfect technique; and we find, moreover, that the opsonic index of a given individual may vary from day to day. It is essential, therefore, in the first place that competent technicians do the work. I have seen in the laboratory half a dozen students find a wide variation of indices in identical specimens of blood.

The question, therefore, arises at once, Of what value is the estimation of the opsonic index in a given case? We have come to doubt its constant value, but a considerable experience, at least in this country, has brought us to believe that a series of observations on successive days will lead to a final judgment. For instance, in a case under the observation of the writer, an open wound was found to be doing well, the cultures showing numerous staphylococci pure, the opsonic index being 1.4 — slightly above the normal. The next day the index was 1.2; and so it fell until it reached 0.75. Coincident with this fall in the opsonic index the patient's general condition gave

[3] G. W. Ross: The Opsonic Theory, Brit. Med. Jour., July 7, 1906.
[4] For an illuminating description of this technique, see article by John C. Hollister, in *Surgery, Gynecology and Obstetrics*, Dec., 1906.

cause for anxiety; the temperature crept up, the appetite failed and the wound began to look ugly. An injection of appropriate vaccines was then given, when, within twenty-four hours the temperature began steadily to fall and the other symptoms to improve. This case ran a long course with occasional increase in the severity of the symptoms. On each occasion the troublesome symptoms were found to coincide with a fall in the opsonic index; with every fall injections were given, and with each injection of vaccines the index rose from the neighborhood of 0.9 to the neighborhood of 1.4, with a corresponding improvement in the patient's condition.

We have thus outlined in general terms the manner of employing our opsonic remedy, but before this point was reached by the original investigators who had established their premises regarding the nature of opsonins, it was necessary for them to determine how to prepare the remedy. This was the all important therapeutic problem, and it was solved simply. Having determined by culture the nature of the organism or organisms which are causing the infection, one prepares a vaccine by inoculating a proper medium with the culture and obtaining the growth. The colonies are washed off in normal salt solution and sterilized at 60° C. for two hours. One has now a vaccine of unknown strength. This is standardized by diluting it with salt solution until each cubic centimeter contains a known number of organisms. For instance, the writer is using at present a streptococcus vaccine each cubic centimeter of which contains one hundred million organisms.

How is one to know the size of the dose to be employed in any given case? That is a question which is not yet altogether determined, but a considerable experience has taught us the safe average dose. We begin with that and work up to larger doses, guided by the reaction of the patient. The prepared vaccines may often be kept for many weeks or months even, as they are put up commonly in a weak solution of lysol. We are now encroaching, however, upon the field of technique, and the wide range of interesting special topics which this subject suggests to every reader.

A question which is frequently asked, and it is a practical question, is, How can the average busy practitioner employ these measures? Frankly, one cannot employ them unless he is in touch with a laboratory and laboratory workers especially equipped. The technique is laborious and time-consuming. Two or three cases may easily occupy all the time of one investigator, although it is becoming apparent that certain common infections, like boils and carbuncles, may be treated with stock vaccines kept for that purpose. Such rule-of-thumb work may answer in routine dispensary practice, but would be futile largely when one came to deal with more serious cases. Be it said, however, that average inoculations, even though given in error, are found to be harmless when given for localized infections.

There is the further question of the value of opsonins as a diagnostic agent. This is a matter which is still *sub judice*, though, as Ross states, certain general principles have emerged from the study of many cases:

1. Normal individuals not the subjects of any bacterial infection present a constant opsonic power to the various pathogenic bacteria. (This statement is still subject to question, probably on account of errors in technique.)

2. Individuals, the subjects of a strictly localized infection, due to any micro-organism, show a lowered opsonic index to that particular organism as compared with a normal person.

3. Individuals, the subject of systemic infection, show a high, or *fluctuating from high to low*, opsonic power.

This last condition of fluctuation is probably due to the "negative phase" and "positive phase" of which I have not yet spoken. The "negative phase" follows a vaccination for twenty-four hours. The index falls at first, and then ("positive phase") rises up to or above the normal. Ross quotes a case in illustration of the opsonic method as used in the diagnosis of an obscure case.

The patient entered the hospital with a provisional diagnosis of general tuberculosis. His tuberculo-opsonic index was found to be 1.0 (a figure slightly above the normal for tuberculosis, — an exception to the rule that 1.0 is normal). The physician suspecting the possibility of a gonococcal infection estimated the opsonic index to the gonococcus, with the result that it was found to be twice normal, a condition of the blood which is almost certainly associated with a gonococcal infection only, and indicates that the patient's own infecting organisms were over-supplying him with opsonins. Further investigation confirmed the diagnosis of gonorrhea with a general infection.

Surgeons are not especially concerned, however, with infections of that type which fall within the province of the internist, though we are coming to feel that certain properly surgical affections are yielding hopeful results when subjected to opsonic therapy: *furunculosis*, *pustular acne*, *chronic empyemata* (after drainage), *cystitis*, and especially the various *wound infections* due to staphylococci and colon bacilli. In this community we are by no means convinced of the value of opsonic treatment in cases of tuberculous adenitis, although Wright makes positive claims in such cases. It was hoped at one time that various obscure and obstinate joint infections would show positive results from opsonic therapeutic and diagnostic measures, but although a few encouraging cases have been encountered we cannot feel as yet that positive results have been obtained. This is true not only of tuberculous joint lesions but of joint lesions due to other organisms, and the probable reason is that we have not yet been able to isolate and study some of the organisms which we assume to be the causative agents in many obscure cases of arthritis.

The reader will see, therefore, that surgical progress in the use of opsonins is not yet in a

positive position, — surgical progress in this community at least. One may describe our attitude towards the question as generally hopeful but still somewhat puzzled. There is no doubt that some cases, notably staphylococcus and colon cases, have been greatly improved or cured, but we feel that the whole subject is embryonic as yet, and that a deal of work remains to be done before we can record the opsonins invariably and confidently among the important agents at our command.

Book Reviews.

The Practitioner's Medical Dictionary. By George M. Gould, A.M., M.D. Limp leather. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Dr. Gould's preface contains this rather serious indictment: "Not a little of the modern publishing business consists in selling at an enormous profit a vast amount of book-paper of poor quality, large extent and useless thickness, upon which is sprawled a correspondingly exiguous text." This book is on the plan of the "Students' Dictionary" by the same author. It contains practically the same illustrations, has about one fourth more and slightly larger pages, and is published at double the price of that book.

We think that of new terms introduced, some, such as: "Clinotechny, the art of making and preparing beds for the sick," or "Cordite, a smokeless gunpowder," or the large number of names of organic compounds consisting of twenty-eight or more letters will not prove of much value to practitioners.

It is unfortunate that the pronunciation of the new word "opsonin" is wrongly given, and that the term "opsonic index" is omitted.

The illustrations are mostly the well-known cuts from Sappey. They are sometimes credited to that author, at times not credited at all, or wrongly credited to "Holden" or "Gould and Pyle." It would seem that, if it is useful to state the origin of these familiar pictures, it should be stated accurately.

The New Hygiene. Three Lectures on the Prevention of Infectious Diseases. By Elie Metchnikoff. With preface by E. Ray Lankester. Chicago: W. T. Keener & Co. 1906.

This small volume of 104 pages contains Metchnikoff's three Harben lectures on "The Hygiene of the Tissues," "The Hygiene of the Alimentary Canal" and "Hygienic Measures Against Syphilis." The lectures are eminently practical and are expressed in such a way as to be easily intelligible to the laity. Metchnikoff is always an entertaining writer, and these lectures certainly will not detract from his reputation in this respect. An appreciative preface is written by E. Ray Lankester who regards Metchnikoff with justice as one of the greatest living men of science and "above all an inquirer, filled with the consuming ardor of the *Curiosi Naturæ*."

THE BOSTON

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THE RELIEF OF CONSUMPTIVES.

In accordance with a resolve passed by the Massachusetts Legislature last year, the governor appointed a commission of five to investigate measures for the relief of consumptives and sites for state hospitals for consumptives. Dr. Henry P. Walcott, chairman of the Massachusetts State Board of Health, was appointed chairman of the commission, and although but a few months have elapsed since the investigation was begun, the report, dated January, 1907, is in our hands.

In order to determine the number of persons suffering from pulmonary tuberculosis in advanced stage in the state, circular letters were sent to every physician in the state, asking for information regarding the occurrence of tuberculosis in their individual practices. This method of securing information did not prove entirely satisfactory, however, and a further attempt was made to arrive at the information desired by selecting the counties of Bristol and Berkshire, differing somewhat in climatic conditions, and sending a reliable person to each physician in each county for the purpose of acquiring first-hand information. From this as a basis it has been possible to compile with a fair degree of accuracy statistics which will prove of positive value. These show that the total number of cases of pulmonary tuberculosis, as reported to the commission, was 7,779. Of these 6,376 were private patients of physicians who answered the circular letter sent out by the commission and 1,403 were either in private or public institutions located in the state. The number of incipient

cases reported was 2,792, the number of advanced 2,339, and the number of far advanced 2,648.

It was also one of the functions of the commission to investigate appropriate sites for hospitals, to determine the cost and to report upon the general advisability of placing upon the state the responsibility for the care and treatment of tuberculous persons. Small difficulty was found regarding available sites for hospitals. Many such locations may easily be found in every county and in the neighborhood of nearly every town in the state. Regarding the probable cost of suitable buildings to be used as hospitals it is estimated that 100 patients may be accommodated in a frame construction building, properly equipped, at a cost of $50,000. If such a building were rendered thoroughly fireproof through the use of brick and concrete, $25,000 would be added to the cost. From various data obtained the commission concludes that the cost of maintenance in such public hospitals would be not less than $7 nor more than $9 a week for each patient. As to the responsibility for the care of persons suffering from tuberculosis, the commission, after due deliberation, reached the conclusion that some systematic plan for aiding persons suffering from the disease and for eradicating the disease, must be established by the Commonwealth. In order to obtain an expression of public opinion as to the most feasible methods a largely attended hearing was held at the State House in Boston, Dec. 10. Many ideas were expressed, differing somewhat in detail, but agreeing in the essential point, that the time has come for thorough and concerted action.

The commission finally advises that certain amendments be made to the statute relating to public health; that the law relating to expectoration in public places be enlarged somewhat in its scope and that the state erect three hospitals for the treatment of tuberculosis to be devoted chiefly to the treatment of advanced cases, one to be located in the Connecticut Valley, another in the northeastern part and the third in the southeastern part of the state, each to accommodate over one hundred and fifty patients. It is finally advised that proper legislation be enacted in order to provide for state medical inspectors. This succinct and practical report is signed by Henry P. Walcott M.D., chairman; Charles H. Adams, Jeffrey R. Brackett, Charles H. Porter, Adam S. MacKnight, M.D., and Charles S. Millett, M.D., secretary.

REWARDS FOR SCIENTIFIC ACHIEVEMENTS.

EACH year the distribution of the Nobel prizes brings again to our attention the obligations which a country owes to its men of science. It is a somewhat anomalous condition of affairs that from Sweden should be dispensed rewards for scientific work to the whole civilized world, while individual governments sit supinely by and make no concerted effort toward the reward of their scientific men. We have in this country many instances of admirable work done which has saved much to the country in the way of commerce and ensured financial prosperity, but unfortunately we have few examples of national recognition of such work. Money is voted and appropriated for diverse objects of charity and many other less worthy causes, and at the same time it is almost impossible, without repeated solicitation, to secure a modest memorial for a man like Dr. Walter Reed. The situation is an interesting one and one which certainly permits discussion.

The whole matter has been admirably presented in a recent number of the *British Medical Journal* by an anonymous writer under the title, "A British Nobel Prize." This writer has evidently considered the subject from various standpoints and offers a very cogent argument in favor of the more generous recognition of the labors of scientific men. Attention is called to the somewhat extraordinary fact that England, for example, while neglecting to take action itself, is quite willing to recommend an Englishman for the reward which Sweden has to offer in the form of a Nobel prize. The obligation of the state to give pecuniary reward for scientific work was recognized when Parliament voted £30,000 to Jenner, but this attitude has certainly not been maintained since. The discoverer in science, although his results may be of far greater significance than that of those more prominently in the public eye, remains the least rewarded among those serving the state. It is useless to assert that the great worker in science does not and should not look for payment and that his merit is its own reward. This is not the issue. The real question is not what the worker in science expects, but what he deserves, and, further, not what a nation owes to him, but what it owes to itself. "If," the writer goes on to say, "the individual has duties to perform towards the public, has the public none towards the individual? On what grounds does it recompense the inventor, the politician, the statesmen and the soldier, and yet withhold it from those who are perhaps greater than these? Is there not something inde-

scribably sordid in the history of the world's treatment of its benefactors — in life, penury; in death, a cheap apotheosis? To me it appears, and I say so with all due hesitation, because personal opinion so often proves to be fallacious, that the matter is one which concerns, not so much the welfare of the individual as the honor and integrity of the whole nation. If the individual shirks payment for work done for him, he is looked upon as dishonorable; by what right, then, does a nation seize the fruit of a man's life-work for nothing? "

The proposition is finally made that a British fund should be accumulated to pay medical workers who have actually achieved results of positive value to medical science without bringing pecuniary recompense to themselves. The suggestion is certainly a rational one and in these days of enormous benefactions to the cause of education in general, it would be fitting and proper that individuals or possibly governments should set aside a sufficient sum of money to accomplish for individual countries what the Nobel prize is accomplishing for the world at large. If such a movement were earnestly taken up, we have no doubt that the desired result could be accomplished of providing for men without injury to their self-esteem, who have really added to the advancement of scientific knowledge.

PROCREATION OF DEFECTIVES.

We have before us a bill which has been recommended for passage by a Committee on Benevolent and Scientific Institutions of the Indiana Legislature. This bill involves a matter of so great importance and one about which there has been so much discussion that we quote it in full:

A Bill for an act entitled An Act to prevent procreation of confirmed criminals, idiots, imbeciles and rapists, providing that superintendents and boards of managers of institutions where such persons are confined shall have the authority and are empowered to appoint a committee of experts, consisting of two physicians, to examine into the mental condition of such inmates.

Whereas, heredity plays a most important part in the transmission of crime, idiocy and imbecility;

Therefore, be it enacted by the General Assembly of the state of Indiana, That on and after the passage of this act it shall be compulsory for each and every institution in the state intrusted with the care of confirmed criminals, idiots, rapists and imbeciles, to appoint upon its staff, in addition to the regular institutional physician, two skilled surgeons of recognized ability, whose duty it shall be, in conjunction with the chief physician of the institution, to examine the mental and physical condition of such inmates as are recommended by the institutional physician and board of managers.

If, in the judgment of this committee of experts and the board of managers, procreation is inadvisable and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeons to perform such operation for the prevention of procreation as shall be decided safest and most effective. But this operation shall not be performed except in cases that have been pronounced non-improvable. Provided that in no case shall the consultation fee be more than three dollars to each expert, to be paid out of the funds appropriated for the maintenance of such institutions.

We have in the past so frequently commented on this subject that a detailed consideration of it need not here be given. Our attitude has been, and we see no reason to change it, that in the present state of our knowledge such legislation is uncalled for, that it might lead to serious abuses, and that it would probably do little toward accomplishing the results for which it is designed. Few physicians would take upon themselves the responsibility which this bill demands, and it is hardly to be questioned that the public welfare would suffer more from the enforcement of such a law than from the present state of affairs. Nature is the best safeguard for the public in these matters.

MEDICAL NOTES.

The Last Harvey Lecture. — The last of the series in the Harvey lectureship course in New York was recently given by Prof. Friedrich Müller, of Munich, on the topic, " Some Neuroses of the Heart." The lecture was largely attended and was comprehensive in its scope.

Work of the Michigan University Pasteur Institute. — An excellent report is given of the work of the Pasteur Institute connected with the medical department of the University of Michigan. This institute was established in 1903, and during the four intervening years 246 patients have been treated, with no fatality. Of these cases about two thirds were from Michigan, and these, being residents of the state, were treated free of charge, except for the expense of board and room.

Death of Mrs. Osler. — Mrs. Osler, who will be particularly known in this country as the mother of Dr. William Osler, died recently in Toronto in her one hundred and first year. It will be remembered that in December of last

year her one hundredth birthday anniversary was celebrated by the presence of her sons and many of her descendants. She was then in excellent health and, in fact, remained so up to within a few days of her death. Mrs. Osler's husband, the Rev. Featherstone G. Osler, died in 1895 at the age of ninety. Both she and her husband were devoted to good works during their long lives.

THE LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. — According to the annual report of the library committee of the College of Physicians of Philadelphia for 1906, the total number of volumes in the library is 73,507. In addition to these volumes there are nearly 100,000 unbound reports, transactions, dissertations and pamphlets of other sorts. More than 2,000 new volumes have been received during the year and a large number of pamphlets and medical periodicals. The growth of medical libraries, of which this is an example, is one of the most hopeful indications of medical progress in this country.

HOSPITAL ABUSE IN PARIS. — A correspondent writes as follows in the *Lancet* of the abuse of medical charity in Paris: "The directors of the Assistance Publique have just issued a poster in the following terms: 'Advice at hospitals and dispensaries is exclusively intended for the really poor and necessitous. Every one applying at a hospital must be prepared to prove his identity, to give his domicile in Paris and to show that he is really poor by a certificate from a *bureau de bienfaisance*, as well as a receipt for his rent. Except in the matter of urgent cases all the medical staff and the other employees of the administration of the Assistance are forbidden to give treatment to any one whose calling or the amount paid by him in rent appears to make it probable that he is not a fitting subject for hospital treatment. The Assistance will make inquiry into the truth of the statements of patients, and if they are found to be abusing the charity the expenses incurred by their treatment will be recoverable by law.'"

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 20, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 45, scarlatina 59, typhoid fever 4, measles 16, tuberculosis 68, smallpox 0.

The death-rate of the reported deaths for the week ending March 20, 1907, was 21.31.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, March 23, 1907, was 231, against 268 the corresponding week of last year, showing a decrease of 37 deaths and making the death-rate for the week 20.00. Of this number 109 were males and 122 were females; 223 were white and 8 colored; 138 were born in the United States, 91 in foreign countries and 2 unknown; 49 were of American parentage, 158 of foreign parentage and 24 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 41 cases and 2 deaths; scarlatina, 61 cases and 0 deaths; typhoid fever, 4 cases and 0 deaths; measles, 13 cases and 0 deaths; tuberculosis, 58 cases and 27 deaths; smallpox, 1 case and 0 deaths. The deaths from pneumonia were 40, whooping cough 2, heart disease 26, bronchitis 6 and marasmus 3. There were 23 deaths from violent causes. The number of children who died under one year was 40; the number under five years 54. The number of persons who died over sixty years of age was 56. The deaths in public institutions were 87.

There were 10 cases and 5 deaths reported from cerebrospinal meningitis during the week.

SMALLPOX AT LAWRENCE, MASS. — It is announced that upwards of ten cases of small-pox have been discovered in the city of Lawrence and the State Board of Health has been called upon. Some of these cases are unfortunately of several weeks' duration.

THE SPREAD OF RABIES A GRAVE DANGER TO THE COMMUNITY. — At a meeting of the Boston Society for Medical Improvement, held on March 18, 1907, the following resolution was adopted:

"Be it resolved that the Boston Society for Medical Improvement recognizes a grave danger to the community in the spread of rabies, and is anxious that the influence of this society, and of its members individually, be earnestly directed toward the stamping out of this disease. To this end we commend the efforts now being made by Dr. Peters and his associates for the more watchful care of dogs in this state, believing that the course of action will result immediately in the better control of this disease and eventually in ridding the state of this unnecessary menace to human life."

REPORT OF THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE. — The thirteenth annual report of the Board of Registration in Medicine shows that 315 applied for registration

during the year ending Dec. 31, 1906. Of this number 257 were graduates from medical schools authorized to confer degrees in medicine and 58 were non-graduates. Eighty-three per cent of graduates registered on the first examination and 27% of non-graduates. Tufts College heads the institutions in point of numbers examined, closely followed by the Harvard Medical School. In connection with the general matter of registration the following strong statement is made in the report:

"If Massachusetts covets the reputation of aiming to uphold high standards in the medical school and in the medical profession, the laws of the Commonwealth should enable the Registration Board to conduct its examinations on lines followed by nearly all the other states. In one important particular the Massachusetts law is defective. It is obvious that examining boards should work in conjunction and in harmony with medical schools, in order to secure the best attainable results in their efforts to determine the fitness of applicants to serve the public professionally. But this is not the condition of affairs with us. Persons who have not pursued even a partial course of study in a reputable medical school, who have had no clinical instruction, who know nothing of laboratory demonstrations and who have had no practical experience in the hospital, are permitted to take the board examination in this state. Such applicants, simply from a superficial knowledge derived from medical compends, or by memorizing handbooks of answers to questions asked or likely to be asked by the examining boards, may succeed in passing an appropriate examination before any State Board, and yet be grossly unfit to assume the responsibilities of a physician. Herein lies danger to life and health. In forty states and territories this danger has been recognized, and guarded against by legislative enactments. Why should Massachusetts, in company with Arkansas, Mississippi and Tennessee, still loiter in the background of progress in the medical world?"

It is a matter of extreme regret that the present state legislature has seen fit wholly to ignore the suggestions and recommendations made in this paragraph.

NEW YORK.

Pasteurization Plant at Princeton. — With a view towards the prevention of epidemics, such as have occurred at various colleges recently, Nathan Strauss, of New York, has presented a pasteurization plant to Princeton University.

Diphtheria among House Staff at Bellevue Hospital. — During the past two weeks no less than three cases of diphtheria have developed among the house staff of Bellevue Hospital. Dr. Marcel W. Sherwood, the last one to take the disease, and who was removed to the Minturn Hospital on March 22, apparently contracted it from an ambulance patient who was taken to the hospital by him under a mistaken diagnosis.

Obituaries.

ERNST VON BERGMANN, M.D.

Prof. Ernst von Bergmann, who may with propriety be regarded as Germany's greatest surgeon, died March 25 at Wiesbaden at the age of seventy-one. It is reported that he died as a result of an operation for appendicitis and that he had previously been operated upon.

Professor von Bergmann was born in 1836, at Riga, of a Livonian family. He prosecuted his medical studies at Dorpat, Vienna and Berlin. After receiving his medical degree, he began his career as a teacher at the University of Würzburg. He was active in military affairs during the Austro-Prussian War, during which he served as the director of a military hospital, and later, in 1870, during the Franco-Prussian War, he had charge of hospitals at Carlsruhe and Mannheim. In 1876 he accepted the position of professor of surgery at the University of Dorpat and again entered upon a military life by joining the army of the Danube as a consulting surgeon. In 1878 he became chief surgeon of the Würzburg Hospital; in 1882 he went to Vienna as professor of surgery as the successor of Professor Langenbeck. From Vienna he finally went to Berlin, where for many years and until his death he filled the chair of surgery. Professor von Bergmann throughout his long and exceptionally active life was a prolific contributor to surgical literature, which bore evidence to the wide range of his interest in surgical matters. Not only was his own writing of great significance, but the interest and enthusiasm which he inspired in his students has led to the dedication of a number of valuable contributions in surgery to him. It will be remembered that on the celebration of his seventieth birthday, held last December, he was the recipient of as much recognition as, perhaps, has ever come to a German medical professor. On this occasion four important scientific works were published commemorative of the occasion. The eighty-fifth volume of the *Deutsche Zeitschrift für Chirurgie* for the year 1906 was dedicated to him as a *Festschrift*. It contained 812 octavo pages from the pens of thirty-five contributors. These articles were profusely and admirably illustrated, and preceding the titlepage of the volume was an excellent portrait of the distinguished surgeon. Other volumes were presented to him in commemoration of his varied activities on the same occasion, among which were Prof. Franz König's "Tuberculosis of the Human Joints and Skull" and Dr. Walter von Oettingen's "Studies in Military Sanitation during the Russo-Japanese War."

Apart from his activities as a teacher and practitioner of surgery in Berlin, von Bergmann was widely called upon by many of the reigning houses of Europe. He had attended the Czar and a member of the family of the Sultan of Turkey. His titles were many, among others Privy Councillor of the Russian Empire. He was an honorary member of the American Surgi-

cal Association and had twice declined calls to a professorship of surgery in St. Petersburg. He will, no doubt, by many be particularly remembered for his connection with the Mackenzie incident at the time of the illness of the Emperor Frederick. The strained relation which existed between von Bergmann and the English laryngologist is fresh in the minds of those who have followed medical matters in the last twenty years. Reasons of state, no doubt, had as much to do with the peculiar situation as reasons of science.

Although dying in the fulness of years, Professor von Bergmann's loss will be felt wherever surgery is taught and practised.

GEORGE G. WHEELOCK, M.D.

DR. GEORGE G. WHEELOCK, for many years a prominent practising physician in New York, died on March 22, at the age of sixty-eight years. He was born in Boston and took his bachelor's degree at Harvard in 1860 and his master's degree in 1864. In the latter year he also took the degree of Doctor of Medicine at the College of Physicians and Surgeons, New York. He entered the government medical military service, and was in charge for a year of the General Hospital at Savannah, Ga. Later he served as interne at the New York Hospital; after which he studied for some time in Europe. On his return he began to practise in New York, and also became a teacher at the College of Physicians and Surgeons, acting as assistant demonstrator of anatomy and lecturer on physical diagnosis. Later he was elected one of the trustees of the college and registrar of its board, and for many years he served as treasurer of the Alumni Association. Among the hospital appointments he held were those of visiting physician to St. Luke's Hospital and to the Nursery and Child's Hospital. In 1891 he was made a manager of the Vanderbilt Clinic and the Sloane Maternity Hospital, and at the time of his death he was president of the last-named institution. In this year, while still in his prime, Dr. Wheelock retired from practice, and devoted himself exclusively to public work. His sound judgment, as well as his culture and refinement, rendered his services eagerly sought for, and his death will be severely felt among the various benevolent, scientific and social interests which were the objects of his attention.

JOHN H. BRINTON, M.D., LL.D.

DR. JOHN H. BRINTON died in Philadelphia March 18 of cerebral hemorrhage. He was born in Philadelphia in 1832 and was a graduate of the Jefferson Medical School. He spent some time abroad in the study of his profession and then returned to its practice in Philadelphia. When the Civil War broke out he was appointed a brigade surgeon of volunteers and assigned to the Department of the West, where he served with General Grant in the Tennessee and Cumberland River campaign in 1862. He was subsequently ordered to Washington and given an appointment in the office of the Surgeon-General. At this time he did considerable work on the "Medical and Surgical History of the War of the Rebellion," and also in organizing the Army Medical Museum. Later he acted as medical director in the Missouri campaign under General Rosecrans, and was subsequently superintendent and director of hospitals in Tennessee and medical director of the army of the Cumberland. On returning to Philadelphia after the war he received the appointment of lecturer on operative surgery in the Jefferson Medical School, was appointed surgeon to the Jefferson Hospital, and subsequently professor of the practice of surgery and clinical surgery in this school. About a year ago Dr. Brinton was made professor emeritus of surgery.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. MARCH 9, 1907.

1. *SHERMAN, H. M. *Technique of Laminectomy.*
2. HOLT, L. E. *Medical Tendencies and Medical Ideals.*
3. *GRINKER, J. *Multiple Neuritis Simulating Progressive Muscular Atrophy.*
4. WILLIAMS, C. H. *Some Legal Phases of the "Patent-Medicine" Question.*
5. *HEISER, V. G. *Cholera in the Philippines in 1905.*
6. *FAIRBANKS, A. W. *Cerebral Syphilis in Childhood.* (Continued.)
7. TODD, F. C. *The Ripening Operation for Immature Senile Cataract.*

1. Sherman reports a case in which he attempted to make an osteoplastic laminectomy of the cervical vertebræ in the removal of a growth producing pressure symptoms in that region. The difficulties of the operation are detailed, and he concludes from the results that a simple laminectomy in this case would have been the better operation, saving time and tissue. The operation which would be the better one in the kyphotic dorsal region is not so satisfactory in the lordotic cervical spine, where the preservation of the laminæ is not essential for the saving of the function of the extensor muscles. The impossibility of an accurate anatomic suture of the muscles that are divided in making the flap and the possibility of seriously interfering with their innervation, are matters also to be considered. The surgeons with whom he corresponded were all in favor of the simple laminectomy in this region. He still thinks, however, that an osteoplastic operation may have its place in case of vertebral tuberculosis in which the angular deformity is practically a right angle, in which the saving of the bone would prevent undue compression of the cord, otherwise unprotected, by the muscles.

3. Three cases, one of alcoholic polyneuritis, one of lead paralysis and one of progressive muscular atrophy, illustrating the futility of attempting to differentiate these conditions by objective symptoms alone, without study of the etiology and course of the disease, are reported by Grinker, who holds, nevertheless, to the advisability of clinically separating the cornual from the peripheral lower neuron disorders. His conclusions are given as follows: (1) Clinically, multiple neuritis may simulate a spinal atrophy as regards distribution of paralysis, absence of sensory symptoms and protracted course. (2) Progressive spinal muscular atrophy may resemble neuritis in the presence of pain, remission of symptoms and subacute course. (3) Etiology and course are still the best guides in the clinical diagnosis of the various muscle atrophies.

5. Heiser gives a history of the outbreak of cholera which started rather unaccountably in Manila in August, 1905, and seemed to spread without any direct connection between the cases. In the city of Manila there was a total of 255 cases and 200 deaths, foreigners (Europeans and Japanese) suffering most in proportion to their numbers, and the Chinese least (reported cases). The smallest mortality was among the Americans. Outside of Manila there were nearly 1,500 cases, with 1,150 deaths. The disease spread more slowly than in the preceding epidemic; the methods used to combat it were isolation of cases in the city cholera hospital and disinfection of the houses and effects of patients, protection of the water supply, prohibition of the sale of foodstuffs likely to be infected and protection of the remainder by fly screens, and education of the public as to prophylactic precautions. No attempt was made to quarantine contacts or to enforce a land quarantine. The conclusions reached from this experience were: (1) It is impossible, with the evidence, to say whether the disease was reintroduced from without or had been in a latent state since the former epidemic. (2) While there is no evidence that the disease spreads otherwise than does enteric fever, yet the rapidity with which it makes its appearance in widely separated localities puts it in a different class so far as combating it successfully is concerned. (3) Maritime quarantine can practically insure against its spread by sea. (4) Effective land quarantine is practically impossible, and the time and money it costs are better given to educational methods. (5) Public education is much more effective in suppressing the disease than measures requiring force. (6) To make future serious outbreaks of cholera in the Philippines impossible it will be necessary to replace the present unsanitary water supplies with artesian wells or other sources not infectible by surface drainage, or to correct the infection by filtering or other means when it does occur.

6. Fairbanks discusses the subject of cerebral syphilis in childhood without discrimination between true hereditary and early acquired cases, since clinically these cannot be distinguished. Hereditary syphilis, he states, is deserving of much more attention than it has received. The three principal pathologic conditions of cerebral syphilis are in the order of their apparent frequency of occurrence: Meningitis (principally leptomeningitis); arteritis (usually endarteritis); and syphilomata (usually of meningeal origin). All other changes are probaby secondary to these. The characteristic symptoms of syphilitic lesions are their multiformity, their usually subacute onset with occasional acute and severe individual symptoms. These latter often disappear unexpectedly and recur in the same or other localities, eventually becoming permanent. Lastly there is the striking amenability of some of the symptoms to specific treatment, while others are most resistant. The symptoms are manifold, but some one type usually predominates at some period of the disorder. Psychic changes occur early, but are often unobserved and lacking in the history. Other symptoms, motor and sensory, make their appearance before the psychic changes are fully recognized, such as vertigo, frequent speech aberrations, visual disturbances, and attacks of syncope. Later pupillary phenomena, epileptiform or hemiplegic attacks, appear. Early recognition of the condition is very important and evidence of hereditary syphilis in the family history should be diligently sought. The prognosis depends largely on the pathologic type, the determination of which is not always easy. The purely gummatous symptoms are usually amenable to specific treatment and simple meningeal conditions are also commonly favorable, while arterial lesions are the worst. External injury often precedes the outbreak and is considered the cause. While the author does not think this commonly the case, he admits the possibility that the impaired brain may be a point of least resistance.

The American Journal of the Medical Sciences.

March, 1907.

1. *Conner, L. A. *Acute Dilatation of the Stomach.*
2. *Vaughan, G. T. *The Operative Treatment of Fractures.*
3. *Simon, C. E. *Leukemic Blood Picture in a Case of Fracture of the Ankle.*
4. *Barringer, B. S. *The Luys Urine Separator.*
5. Marriott, W. M., and Wolf, C. G. L. *Colloidal Nitrogen in the Urine.*
6. *Cowie, D. M. *A Comparative Study of the Occult Blood Tests.*
7. Cary, C. *Varicose Aneurysm of the Aorta and Superior Vena Cava.*
8. *Edsall, D. L., and Pemberton, R. *The General Toxic Reaction Following Exposure to the X-Rays.*
9. *MacCallum, W. G. *Hypertrophy of the Islands of Langerhans in Diabetes Mellitus.*
10. Mitchell, J. K., and Allen, A. R. *Universal Itching; Urobilinuria; Malaria; Erythrocytolysis.*
11. Schumann, E. A. *Fibroid Tumors of the Vulva.*
12. *Blake, J. A. *Treatment of Diffuse Suppurative Peritonitis.*

1. Conner has collected 102 cases of acute dilatation of the stomach, which serve as a basis for his study. He has further conducted experiments upon the cadaver in the attempt to explain the mechanism by which the condition is produced. This mechanism, however, remains obscure. Acute dilatation of the stomach is a condition whose importance is not sufficiently realized. It is undoubtedly of more frequent occurrence than is known, since most cases that have been recognized have been reported by physicians who have previously seen the condition at autopsy. Almost half of the reported cases have occurred after operations under general anesthesia. Others have occurred during or after severe illnesses or injuries. Deformities of the spine have been present in 6% of the cases. The symptoms are vomiting, pain, distention, tenderness and rapid collapse. The temperature is almost always normal or subnormal. The distention occupies mainly the epigastrium and left half of the abdomen, sometimes extending down to the pubes. At autopsy the stomach is found distended into a cylinder, sharply bent upon itself, the cardiac portion forming a descending arm and the pyloric portion forming an ascending arm. In most cases the duodenum as well as the stomach is dilated, and in many cases it is obstructed by pinching of the gut between the tense mesentery with the superior mesenteric artery and the vertebral column. Obstruction of the cardia has been suggested as a necessary factor, but its importance becomes doubtful from the results of experimental work and from the fact that in most cases vomiting and eructation occur. The treatment is first to empty the stomach by stomach tube, after which body fluid and nutrition must be supplied by rectum. Operation has almost invariably proved fatal. Of the 102 reported cases, 74 have died, but there is reason to believe that many unrecognized cases recover, and that with prompt recognition and proper treatment a more favorable showing would be made.

2. Vaughan calls attention to the fact that although fractures under non-operative treatment almost always get well, there is almost always considerable malposition of the fragments, with more or less shortening and sometimes delayed union. Operative treatment, with wiring, insures more perfect position and more certain union. Against these advantages are to be weighed the dangers of operation, — anesthesia, fat embolism, too extensive separation of the periosteum and infection. The author operated upon 102 cases with 2 deaths, — one from either fat embolism or chloroform, the other from fat embolism alone. Both of these fatal cases were fractures of the neck of the femur. The technique is illustrated by diagrams.

3. Simon reports a case in which after fracture of the ankle the blood had the characteristics of that of myelogenous leukemia. Six months later, the blood had returned to normal condition.

4. Barringer describes the Luys urine separator, the technique of its use, and the results obtained in 14 cases. The instrument, he concludes, is of great value in cases where a knowledge of the condition of the kidneys is desired and the ureters cannot be catheterized. With it the dangers of infection of ureters is excluded, and less skill is required in manipulation. It can be used in all cases except those in which the capacity of the bladder is less than 20 cc., those in which the urethra is not penetrable, and those in which the base of the bladder is distorted, as by an enlarged prostate. Except in these cases there is no leakage from one side to the other. A full

description of cases is given in support of these conclusions.

6. Cowie proposes the following modification of the guaiac test for blood, which he finds much more delicate than the tests usually employed. The essential difference from other methods lies in the addition of distilled water to the ether extract before adding the turpentine. The test may be summarized thus: to 1 gm. of stool, softened if necessary by a little water, add 4 cc. glacial acetic acid and mix; extract with 30 cc. of ether; to 1 or 2 cc. of the extract add an equal amount of distilled water and shake; add a few granules of powdered guaiac and shake; add 30 drops of old turpentine and mix. One milligram of blood per gram of stool gives a distinct blue color. Smaller amounts give a smoky grass-green color. Cowie has investigated a number of questions bearing upon the clinical value of the guaiac test with the following results: 1. Individuals eating an ordinary meat diet seldom give a reaction in the stools; if such a reaction is present there is in all probability some lesion of the alimentary tract. 2. For a positive reaction from ingestion of uncooked meat, at least 10 grs. must have been eaten. 3. For a reaction to occur in the stools after a hemorrhage from the esophagus or stomach, 0.5 grs. is necessary for a faint, and 1 gr. for a decided, reaction. 4. The reaction always occurs in the first stool after the hemorrhage, seldom in the second. 5. All the guaiac tests are more sensitive than the aloin test; the water, guaiac and turpentine test is the most delicate of all. A gradually appearing and fading color is the crucial test of a positive reaction; any color from a pale green to a deep violet that develops and fades is positive.

8. Edsall and Pemberton, from observation of toxic reactions in two cases following exposure to x-rays, maintain that it is inadvisable, except for urgent reasons, to expose to the x-rays cases already subjects of an intoxication from infectious disease or metabolic disorder, especially nephritis.

9. MacCallum has observed in certain cases of diabetes in children a peculiar condition of the pancreas in which the islands of Langerhans are apparently increased in size and number. He regards the change as an effort at compensation.

12. Blake summarizes the operative treatment of diffuse peritonitis as follows: First, remove rapidly through a small incision the origin of the inflammation; second, wash or irrigate the peritoneal cavity; third, use as little drainage as possible, not attempting to drain the general peritoneal cavity. The washing, he maintains, is desirable to remove the extravasated gastric or intestinal contents; it is to be done in less than five minutes and with care not to injure the peritoneum. For drainage he advocates leaving only a small opening, the drain only passing through the wound, just entering the abdominal cavity. Irrigation, he believes, in addition to removing septic products tends to check exudation and to facilitate peritoneal absorption. In after-treatment, he lays stress upon Fowler's position and upon rectal salines, either by frequent intermittent irrigations (every three or four hours for thirty or forty minutes) or by Murphy's constant slow method. In his series of 78 cases of diffuse peritonitis caused by appendicitis, the mortality was 19.2%. Of 13 cases of gastric perforation he lost only 3, in all of whom the perforation had existed for over thirty-six hours.

ANNALS OF SURGERY.

MARCH, 1907.

1. *COLEY, W. B. *Sarcoma of the Long Bones.*
2. GOELTZ, F. A. *Successful Anterior Thoraco-Bronchotomy for a Foreign Body Impacted in the Bronchus.*
3. *LLOYD, S. *The Surgical Treatment of Empyema.*
4. FORT, R. E. *Cysts of the Omentum.*
5. WALKER, G. *Tuberculosis of the Bladder.* (Continued article.)
6. *PECK, C. H. *Drainage of the Knee Joint in Severe Infections by the Transverse Incision.*
7. ASHHURST, A. P. C. *Diffuse Cavernous Angioma of the Upper Extremity.*
8. PETTY, O. H. *Fracture of the Coracoid Process of the Scapula Caused by Muscular Action.*
9. DEAVER, J. B. *Operations at Public Clinics of German Hospital during 1905–06.*
10. PILCHER, J. T. *Glanders in the Human Subject. Clinical Report of Two Cases.*

1. Coley, in his report of 69 cases of sarcoma of the long bones, makes the following diagnostic points: (1) The patient will almost always be between ten and fifty years of age, the majority between twenty and forty. (2) General health will be perfect; there will be no family history of tuberculosis and no evidence of previous tubercular lesions. (3) There will be a history of local injury of some sort in one third to one half of the cases, occurring usually less than six months prior to the first appearance of the tumor. (4) The first symptom will be local pain or local swelling in about an equal proportion of the cases. (5) In upwards of two thirds of the cases of sarcoma of the long bones the tumor will be found located in one end of the bone, the lower end in the femur, the upper in the tibia and humerus, probably starting in the epiphysis, but very rarely invading the joint except in the later stages of the disease. (6) In nearly all cases the rate of growth is much more rapid than in either tuberculosis or syphilitic swellings. (7) The consistence of the tumor varies greatly; in the early stages it is often very firm; later on when the tumor has reached considerable size, the consistence may be soft and semi-fluctuating. (8) The contour of the tumor is of considerable importance; in tuberculosis starting in the epiphysis and soon involving the joint, the clinical picture is that of a swelling of the whole joint more or less symmetrical, while in sarcoma, especially of the femur the swelling is apt to be unilateral or more or less irregular, and does not extend into the joint, but further up the shafts of the femur than is seen in tuberculosis. In the treatment of a disease of such extreme malignancy as sarcoma, Coley has made a distinct advance by the use of the mixed toxins of erysipelas and the bacillus prodigiosus. He has collected twelve cases of sarcoma of the long bones in which the use of these toxins has rendered amputation unnecessary and the limb has been saved. Coley's attitude is as follows: "If we could offer the patient reasonable certainty of life by amputating the limb, there might be some ground for hesitating to try the toxin treatment before amputation; but, in the face of our inability to save the life of the patient except in a very small minority of cases, I feel that we are risking little in giving the patient the benefit of a brief trial with the mixed toxins. A period of three to four weeks will almost always be sufficient to determine the probable success or failure of the treatment. If a tumor continues to increase in size during this period, then I would not prolong it to the full four weeks but would amputate at once, and then as soon as practicable continue the toxins as a prophylactic against recurrence. With this important exception, I would limit the use of the toxins to *inoperable* sarcoma, which has always been my custom in the past."

3. Lloyd reports 225 cases of empyema operated according to his method. Of these 43% were cured, 20% died, while the remaining 37% were referred to the dispensary for dressing and the great majority of them completely cured. His operation is based on the following three facts experimentally demonstrated by him: (1) That the pleura in cases of empyema is not insensitive; (2) that the lung is still capable of expansion and (3) that under only partial anesthesia the lung will expand after the adhesions have been broken up, and will fill the pleura cavity. This last " is undoubtedly due to the healthy lung forcing a larger amount of air into the main bronchus than can escape through the partially closedglottis in the effort at coughing, so that the excess passes over into the bronchus of the collapsed side. In this way the healthy lung is used as an air pump to expand the collapsed one." The operative steps are as follows: (1) Under full ether narcosis resection of about 3 inches of as many ribs as may be necessary, — usually the sixth, seventh and eighth. (2) Withdrawal of ether, incision of pleura and gradual drainage of contained fluid. (3) Separation of adhesions with finger, or if necessary with curved periosteotome, keeping in contact as much as possible with the parietal pleura. (4) After lavage of cavity with hot saline solution, the lung having expanded, suture of the skin incision about a rubber drainage tube with spool flanges. (5) Use of water-bottle spirometer in the after-treatment.

Should the lung be torn during the separation of adhesions, a renewal of the anesthetic will cause it to collapse again when the bleeding will stop or can be controlled by a Paquelin cautery.

6. Peck advises a transverse incision in cases of very severe infection of the knee-joint, laying open the whole joint by dividing both lateral and crucial ligamenst. After the infection has subsided a resection is done, thus saving a leg which would otherwise often have to be amputated.

THE LANCET.

MARCH 2, 1907.

1. SHAW, L. E. *The True Aim of Medical Education and the Evil of the Examination Fetich.*
2. GOWERS, W. R. *Faints and Fainting.*
3. ROGERS, L. *Kala-azar, its Differentiation and its Epidemiology.*
4. URQUHART, A. R. *Insanity with Special Reference to Prognosis.*
5. GILES, A. E. *Some Observations on Uterine Fibroids.*
6. BAUMANN, E. P. *Two Cases of Intestinal Obstruction in Children.*
7. COOK, A. H., and MCCLEARY, G. F. *A Case of Pneumococcal Cerebrospinal Meningitis Simulating "Spotted Fever."*

BRITISH MEDICAL JOURNAL.

MARCH 2, 1907.

1. *HAWKINS, H. P. *Remarks on Idiopathic Dilatation of the Colon.*
2. *ASHE, E. O. *Notes on a Case of Enterospasm.*
3. MAYLARD, A. E. *Simple Colonic Adhesions a Cause of Intermittent Attacks of Abdominal Pains.*
4. EVE, F. *Some Operations for Removal of Malignant Growths from the Naso-Pharynx.*
5. BAINBRIDGE, W. S. *Trypsin in Cancer.*
6. HARRIS, W. *Influenza Commencing with Sudden Unconsciousness, and Excessive Dyspnea.*
7. SOUTHAM, F. A. *Two Cases of Cystin Calculi.*
8. ROGERS, L. *The Milroy Lectures on Kala-azar.*

1. Hawkins believes that neuropathic dilatation and hypertrophy of the colon is a better name for this condition owing to its probable nervous origin. Early diagnosis is very important as life in all these cases is precarious. The important points in the history are (1) Constipation from birth. (2) Constipation alternating with diarrhea. (3) Abdominal enlargement variable or constant, especially in the left iliac region, with (4) alternations in shape. (5) The absence or rarity of pain or vomiting. A purely anatomical starting point for this condition, narrowing or a kink in the colon, etc., is impossible. "Congenital inertness of the colon" is probably as near as we can come to it. The dilatation usually begins above the rectum but may affect the entire colon and in a few instances, part of the rectum. Besides dilatation, there is a marked hypertrophy of the muscular wall of the colon. The contents of the colon are usually gaseous. Seven interesting cases are given in detail with the operative procedures and post-mortem findings.

2. Enterospasm is a nervous condition of the bowels about which little is known. Ashe's case was a woman who had for a long time complained of constipation and general abdominal pain coming in attacks and growing worse. A curious fact is that light abdominal pressure caused severe pain while deep palpitation did not trouble her. Exploratory laparotomy was decided on as medical treatment did no good. Part of the small intestine, about six inches long, was found to be in a marked state of contraction with nothing to account for it; as the wound was about to be closed it resumed its normal appearance again. The wound was sewed up and nothing done. Belladonna was started, three times a day which has gradually relieved the condition and the patient seems now to be in normal health.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 8.

FEB. 19, 1907.

1. *BACH, L. *The Differential Diagnosis between Relative and Absolute Fixity of the Pupils.*
2. MÜLLER, E., and KOLACZEK, H. *Further Observations on the Proteolytic Ferment of the Leucocytes and its Antiferment.*
3. DEHNE, R. *The Specific Solubility of Precipitins and its Significance in the Medico-legal Examination for Blood.*
4. *SALECKER, P. *Blood Examinations in Asthma.*
5. *NEUMANN, H., *Impurity of the First Sound of the Heart in Childhood.*
6. WENDEL. *The Operative Treatment of Stenosis of the Larynx.*
7. GARHAMMER, K. *On Appendicitis.*
8. DURLACHER, S. *The Chief Cause of Retained Placenta and its Prevention.*
9. *KOLB, K. *The Collective Investigation of the Bavarian Cancer Committee for 1905.*
10. LIEBERS, M. *A Case of Progressive Muscular Atrophy with Exophthalmic Goitre.*
11. URBAN, K. *Remarks on the Antitoxin Treatment of Tetanus.*
12. HAMMER, F. *The Radio-activity of the Iron Springs at Steben.*

1. It is important to distinguish between relative fixity of the pupils (Argyll-Robinson pupils), *i.e.*, pupils which react to accommodation, but not to light, and absolute fixity. Relative fixity occurs almost exclusively in tabes and tabo-paresis, and is therefore of great diagnostic importance. Such pupils are almost always small, while the absolutely fixed pupils are usually large. The latter, while occurring also at times in tabes and paresis, may be caused by a variety of conditions.

4. Salecker made repeated examinations of the blood in seven cases of asthma. Shortly before or during the asthmatic paroxysms, he found the eosins much decreased and the polynuclears increased, with at times a moderate leucocytosis; after the attack, the eosins increased up to as high as 12%, and the basophiles became increased at the expense of the polynuclears.

5. Neumann has frequently observed in children a condition of the heart in which the first sound is either impure, or reduplicated. It is not due to endocarditis, for the heart does not become enlarged and the pulmonic second sound is not accentuated. It is, however, quite permanent, lasting often throughout childhood. Frequently at the beginning a murmur is heard, later only a reduplicated first sound. The condition occurs most frequently after infections of the air-passages or acute infectious diseases. The cause is uncertain.

9. This report consists of statistics concerning the cases of cancer observed in Bavaria during the year 1905.

BERLINER KLINISCHE WOCHENSCHRIFT, No. 3.

JAN. 21, 1907.

1. *BAUMGARTEN, P. *The Question of Ascending Tuberculosis of the Female Genital Tract.*
2. LEUCHS, J. *The Specificity of the Complement Absorption Method in Typhoid and Paratyphoid.* (Continued article.)
3. KROMAYER. *The Use of Light in Dermatology.* (Continued article.)
4. SENATOR, M. *Subglottic Laryngoscopy.*
5. GIERKE, E. *A Criticism of the Silver Spirochete.*
6. WITTHAUER, K. *Novaspirin, an Improved Preparation of Aspirin.*
7. *PEWSNER, M. *The Secretion of Mucus in the Stomach.* (Concluded.)

1. Baumgarten has shown by previous experimental researches that tuberculosis of the genito-urinary system takes a descending course, in the direction of the secretions, excepting in those instances where the outflow is obstructed, in which case the infection may spread upwards. Two gynecologists, however, Jung and Benneke, claim to have shown experimentally that an ascending infection may often take place in the female genital tract. The present article is a refutation of their statements. Baumgarten shows that a half of their positive results can be attributed to obstruction of the secretions, and that in the rest, infection through the blood current and lymphatics cannot be excluded. Baumgarten does not deny the possibility of an ascending infection under exceptional circumstances, but states that the descending form is the rule.

7. Pewsner experimented on dogs with a Pawlow pouch in the stomach (a pouch separated completely from the rest of the stomach and opening externally) as to the effect of corrosive substances introduced into the stomach on the secretion of mucus. He found that while the secretion of mucus in the stomach owing to the local irritating effect of the solution (silver nitrate) was greatly increased, the mucus in the isolated pouch was not increased. This fact favors the view that the secretion of mucus does not take place by reflex action, for otherwise the secretion in the pouch should have been increased also. Clinically the amount of mucus secretion is very hard to estimate, for the mucus of the stomach is hard to differentiate from that derived from the throat and gullet; it is difficult to remove all the mucus by lavage, and some of it is digested by hydrochloric acid.

Remarkable Blood Findings. TÜRK (*Wiener klin. Wochenschr.*, Feb. 7, 1907) reports a unique case in in which there was almost complete absence of neutrophiles both in the bone marrow and in the blood. A woman of forty-five years was brought to the hospital with high fever and the usual picture of septicemia due to the staphylococcus aureus. The white count was extremely low (940 per cm.); neutrophiles could be found only after prolonged search and in scanty numbers. Over 90% of the cells were lymphocytes, the remainder were large mononuclear cells and plasma cells. Eosinophiles and mast cells were entirely lacking. At autopsy the leucocyte-forming structures of the bone-marrow did not show the expected infiltration with lymphocytes, but were scantily developed, and, like the blood, contained only a very few neutrophiles. The case is interpreted as one of lack of development of the bone marrow as regards the formation of neutrophiles, so that the system was unable to respond with the usual neutrophilic leucocytosis to the acute infection. A somewhat similar case was seen by the author in which the clinical picture of enlargement of the lymph nodes and spleen with fever and a lymphocytosis of 84% led to the erroneous diagnosis of atypical leukemia. The patient recovered shortly, but a year after the neutrophiles were still quite low, 43%.

The Occurrence of the Meningococcus and Micrococcus Catarrhalis in the Nasopharynx, and the Action of Pyocyanase on these Organisms. This is the title of an interesting communication by JEHLE (*Wiener klin. Wochenschr.*, Jan. 3, 1907). He found the meningococcus frequently present in the nasopharynx of patients with meningitis and of people who had been exposed to that disease, but never in others. The micrococcus catarrhalis was found in every case and often in pure culture in an epidemic among infants which resembled grippe. Pyocyanase promptly destroyed meningococci *in vitro* and also to a less extent in the sediment from the lumbar fluid obtained from meningitic patients. The same prompt action was manifest after instillations of pyocyanase in the nasopharynx of patients with meningococcus or micrococcus catarrhalis infections; one or at most two applications were sufficient to destroy the organisms. No effect was apparent in infections of the nasopharynx with streptococci, pneumococci, Friedländer's bacillus and other organisms.

The Etiology of Infantile Tuberculosis. CALMETTE (*La Presse Médicale*, Dec. 26, 1906) feels that wrong interpretation of his writings has given the impression that bovine tuberculosis by means of the intestinal tract is the only source of contagion to man. In this paper he corrects that impression, but maintains that in infants especially bovine tubercle bacilli are an important factor, and that infection through the intestinal tract is the commonest mode of entrance. In his report to the Hague Conference, Sept. 6, 1906, he deplored the fact that although in adults infection from tuberculous milk was three times less frequent than infection from human sources, yet the amount of money spent by governments in inspecting and protecting cattle was far greater than the sum spent in guarding the lives of humans. The child infects itself in its family, from soiled objects on the floor, from kisses from nurse or mother, from dust. The greater number of infections come from the intestinal tract, which in early life, is infinitely more permeable than in later years. Continued infection breaks down the barriers presented by the mesenteric glands, and allows the organisms to get into the blood stream. In every case the first lesion is always vascular. If infection is by means of dust going into the lungs, why is pulmonary and laryngeal tuberculosis so rare in children? No one can deny at present that bovine tubercle bacilli are harmful to man. That they, as well as mineral matter, and other organisms can pass through the intestinal tract without leaving any trace is a well known fact. However infants and children may be infected, by milk or by dust, through the lungs or the intestine, it behooves us to boil the milk of cattle which are suspected of being infected and to teach mothers the laws of hygiene and cleanliness and the dangers to their children of dirt in any form, and to show them that they can avoid all contagion by obeying a few simple laws of right living.

Miscellany.

AVENUE LOUIS PASTEUR.

THE following editorial from the March issue of the *Interstate Medical Journal* of St. Louis proceeds, we suspect, from the pen of a graduate of the Harvard Medical School. However that may be, it is perhaps not unprofitable to see ourselves as others, with a large perspective, see us, and we reproduce the editorial for the instruction and welfare of those concerned.

"The powers that preside over the literary and scientific destinies of Harvard Medical School are evidently not in accord with the elder Disraeli, who said, in the 'Amenities of Literature,' that 'the author of "Piers Plowman" disdained their exotic fancies, their Latinisms, their Gallicisms, and their Italianisms.' Our inference is drawn from the fact that, quite recently, the street upon which the new group of medical buildings abuts has been named Avenue Louis Pasteur in honor of the celebrated scientist, and in slavish imitation of French street nomenclature.

"That Louis Pasteur was a beacon-light in the rather dark path of science; that medical progress to-day is indebted to him for its strength and virility; that the Pasteur Institute at Paris would be a credit to any country, are facts only the foolhardy would gainsay. But though this be truth in italics, the action on the part of Harvard University to perpetuate the name of the French scientist and to Gallicize a time-honored Anglo-Saxon expression, is so decidedly out of keeping with the spirit which should inform a representative American university, that condemnation ought to be meted out in no veiled terms.

"Harvard University has always strained a point to preserve its entity as the best expression of American thought; it has always stood for ideals peculiar to this country, and while a certain latitudinarianism is not wanting in the conduct of its affairs, its fundamental principles have always been of the Puritanic sort,—the sort which anywhere else would mean narrowness and self-concentration, but, in the case of so unique and excellent an illustration of our best intellectual and moral forces, spells progress on lines that

should be an object lesson to all our smaller universities. And just because we have always regarded it in the light of the best that a Puritanic conservatism can produce, our sense of the understanding of these principles stands aghast at the sudden leap its stewards have taken, from the calm content of a New England security into the turbulent water of Gallicisms and those other isms which should find no place in our nomenclature.

"Avenue Louis Pasteur may mean much to French ears, but to ours it is a foolish, Gallic perversion of a simple English phrase. Pasteur Avenue, though plain and unadorned, is undoubtedly English with nothing objectionable to a purist, and although Paris boasts of many streets commemorative of her great men, such as Avenue Victor Hugo and Rue Gustave Courbet, this does not justify a rank imitation on the part of a representative American university which has always made for the purity of the Anglo-Saxon tongue. As well call our Washington and Lincoln streets, Street George Washington and Street Abraham Lincoln as tolerate the Harvard Medical School misnomer.

"The French word 'boulevard' has done much in this country to upset the tempers of our mildest citizens. Mud roads, unadorned with trees, have been dubbed 'boulevards,' and to cap the climax enterprising speculators have gone a step farther, just to show how they could improve on a perverted Gallic word, by naming certain streets, Lincoln Street Boulevard and Washington Street Boulevard. With these illustrations in mind we feel that our protest will be as vain as weaving ropes of moonshine, for the history of this country teaches us that when a mandate goes forth from a university such as Harvard, the little minds are ever ready to imitate, since pre-digested food means no labor on the part of man."

Correspondence.

CERTIFIED MILK.

Boston, March 22, 1907.

Mr. Editor: The Milk Commission of the Suffolk District Medical Society, which was organized last summer, drew up certain requirements for certified milk, of which the following are the most important:

"The milk taken from the delivery wagon shall be free from pus and pathogenic organisms, and contain not more than 10,000 bacteria to the cubic centimeter. It shall contain not less than 3% nor more than 4% of proteids, not less than 4% nor more than 4.5% of sugar and not less than 3.5% nor more than 4.5% of fat, but a milk may contain more fat and be certified as containing more than 4.5% of fat. It shall be free from preservatives, coloring matters and other contaminations, and it shall not have been subjected to the action of heat. It shall be cooled to a temperature of 45° F. within one hour of the time of milking, and shall be kept at this temperature up to the time of delivery; it shall not have been frozen. It shall be delivered in glass bottles, sealed in a manner satisfactory to the commission.

"The barn, the dairy and the surroundings shall be in a clean and sanitary condition, satisfactory to the veterinarian of the commission. The cows shall be healthy and free from tuberculosis, as shown by the tuberculin test. The employees shall be healthy and cleanly in their persons and habits. They shall not suffer from nor have been recently exposed to, any infectious disease."

The farm known as the Warelands Dairy, of Highland Lake, Mass., is now fulfilling all the requirements of the commission, and is having its milk certified. At present, however, the milk contains more than 4.5% of fat and is therefore not so well suited for infant feeding as a weaker milk would be. The Women's Educational and Industrial Union, 264 Boylston Street, is the agent for the Warelands Dairy. The milk at the last examination contained but 1,000 bacteria to the cubic centimeter.

Several other farms are preparing to furnish certified milk, and will probably be ready by the autumn.

Yours very truly,

John Lovett Morse, M.D., *Chairman,*
Suffolk District Medical Society Milk Commission.

RESOLUTIONS IN REGARD TO MILK BY THE NEW YORK ACADEMY OF MEDICINE.

New York, March 23, 1907.

Mr. Editor: I have the honor to inform you that the Section on Public Health of the New York Academy of Medicine passed the following resolution at its meeting of March 12, and that the resolution was presented to the New York Academy of Medicine at its meeting on March 21, and adopted:

Resolved, (1) That the Section on Public Health of the New York Academy of Medicine does not believe in the necessity of the compulsory pasteurization of all of the milk supply of New York City, but recommends for the present to all those whose milk supply cannot be proven to be thoroughly inspected and wholesome, and mainly the milk destined for the feeding of infants unless it is "certified," to boil their milk when delivered in the morning for three minutes.

(2) That the health of the city of New York demands a persistence in the policy of supervision of farms, dairies and creameries, supervision of the milk during transit and on delivery in the city and supervision at the points of distribution in the city to the consumer, whether the milk that is distributed has been pasteurized or not.

(3) That local and state health authorities and the Bureau of Animal Industry of the United States Department of Agriculture should co-operate with milk producers to prevent the occurrence of communicable disease in cattle and their care takers.

(4) That the Section on Public Health recommends that the New York Academy of Medicine adopt the above resolutions, and that a copy be sent to the members of the Committee on Public Health of the Board of Aldermen, to the Committee of the New York State Legislature having under consideration the Reece Bill, and to the medical and the lay press.

Respectfully submitted,

John H. Huddleston, M.D.,
Recording Secretary.

A NEW ORGANIZATION PROPOSED.

Mr. Editor: A meeting of physicians who regularly make examinations for life and accident associations and for the purpose of testifying in court was held at the Hotel Somerset on March 22, for the purpose of effecting a permanent organization.

A committee was appointed to draft articles of association and to receive the names of those who desire to join an organization of this kind. The next meeting will be held at the City Club on April 3, 1907.

The committee in charge is as follows:

Dr. C. O. Kepler, *Chairman,*
423 Shawmut Ave.
Dr. C. T Cutting, *Secretary,*
Newtonville, Mass.
Dr. Harry H. Hartung.
Dr. E. M. Greene.
Dr. F. E. Allard.
Dr. F. D. Donoghue.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 16, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,670	457	Quincy	—	—
Chicago	684	205	Waltham	9	3
Philadelphia	—	—	Gloucester	3	1
St. Louis	—	—	Pittsfield	12	2
Baltimore	234	69	Brookline	—	—
Cleveland	—	—	North Adams	5	0
Buffalo	—	—	Chicopee	4	1
Pittsburg	—	—	Northampton	6	1
Cincinnati	—	—	Medford	4	—
Milwaukee	—	—	Beverly	2	1
Washington	—	—	Hyde Park	2	—
Providence	85	26	Newburyport	—	—
Boston	265	47	Leominster	7	2
Worcester	52	13	Melrose	5	0
Fall River	46	16	Woburn	7	1
Cambridge	24	7	Marlborough	5	2
Lowell	48	20	Westfield	6	—
Lynn	23	4	Peabody	—	—
New Bedford	29	19	Revere	6	1
Springfield	24	3	Clinton	2	0
Lawrence	29	9	Attleboro	6	1
Somerville	23	3	Adams	3	—
Holyoke	16	6	Gardner	—	—
Brockton	17	1	Milford	—	—
Malden	13	2	Weymouth	5	1
Salem	13	2	Framingham	2	1
Chelsea	12	6	Watertown	3	—
Haverhill	18	4	Plymouth	—	—
Newton	14	1	Southbridge	2	2
Fitchburg	8	2	Wakefield	—	—
Taunton	8	5	Webster	—	—
Everett	5	4			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MARCH 13, 1907.

KALLOCH, P. C., surgeon. Granted leave of absence for two days. March 12, 1907.

AMESSE, J. W., passed assistant surgeon. Granted leave of absence for fourteen days from May 4, 1907. March 13, 1907.

GLOVER, M. W., passed assistant surgeon. Granted leave of absence for six days from Feb. 23, 1907. March 13, 1907.

BOGGESS, J. S., passed assistant surgeon. Granted leave of absence for seven days from March 17, 1907.

ASHFORD, F. A., assistant surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to San Juan, P. R., reporting to the commanding officer of the revenue cutter "Algonquin" for duty and assignment to quarters. March 12, 1907.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted extension of leave of absence for two days from March 4, 1907. March 8, 1907.

NUTE, A. J., acting assistant surgeon. Granted leave of absence for two days on account of sickness, from March 3, 1907. March 9, 1907.

ROEHRIG, A. M., pharmacist. Reassigned to duty at Stapleton, N. Y., effective Nov. 7, 1906. March 7, 1907.

MACDOWELL, WILLIAM F., pharmacist. Reassigned to duty at Ellis Island, N. Y., effective Oct. 4, 1906. March 7, 1907.

LA GRANGE, J. V., pharmacist. Reassigned to duty at Boston, Mass., effective Oct. 4, 1906. March 7, 1907.

RYDER, L. W., pharmacist. Reassigned to duty at the port of Washington. March 7, 1907.

CARLTON, C. G., pharmacist. Reassigned to duty at Cairo, Ill., effective Oct. 4, 1906. March 7, 1907.

HALL, L. P., pharmacist. Granted leave of absence for two days from March 9, 1907. March 13, 1907.

WILLIAMS, ARZA G., pharmacist. Directed to proceed to New Orleans, La., reporting to the medical officer in command for duty and assignment to quarters. March 11, 1907.

APPOINTMENTS.

DR. HENRY GOLDTHWAITE was appointed an acting assistant surgeon, effective from date of oath. March 8, 1907.

MR. ARZA G. WILLIAMS was appointed a pharmacist of the hird class, effective from date of oath. March 6, 1907.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MARCH 23, 1907.

T. W. SCOTT, pharmacist. Ordered to the Naval Academy.

H. C. CURL, surgeon. Ordered to the U. S. Naval Medical School, Washington, D. C.

F. H. BROOKS, assistant surgeon. Detached Naval Hospital, Mare Island, Cal., ordered to the "Annapolis."

C. P. BAGG and A. R. ALFRED, surgeons. Ordered to Washington, D. C., April 15, for duty on course of instruction at the U. S. Naval Medical School.

R. C. HOLCOMB, passed assistant surgeon. Detached Naval Station, Culebra, W. I., ordered to Washington, D. C., April 15, for duty on course of instruction at the U. S. Naval Medical School.

H. SHAW, passed assistant surgeon. Detached Naval Hospital, Pensacola, Fla., ordered to Naval Station, Culebra, W. I.

J. R. WAGGENOR, medical director. Ordered to Naval Recruiting Station, Providence, R. I., April 1.

J. H. PAYNE, passed assistant surgeon. Detached Naval Recruiting Station, Providence, R. I., ordered to Washington, D. C., April 15, for duty on course of instruction at the U. S. Naval Medical School.

RECENT DEATHS.

DR. RODNEY C. F. COMBES, of Brooklyn, N. Y., died on March 18, from typhoid fever, which he contracted while on a recent trip to Mexico. He was born at East Rockaway, L. I., and was fifty-one years of age. He was graduated from Bellevue Hospital Medical College, New York, in 1875, and was well known as a neurologist. For some years he was president of the Combes sanitarium for nervous diseases at Flushing, L. I.

The death is announced from Washington, on March 18, of BRIG. GEN. JOHN MOORE, at the age of eighty years. He joined the medical corps of the United States Army in 1853. He rose to be surgeon-general, and was retired after a few years' tenure of this office in 1890, on account of the age limit.

BOOKS AND PAMPHLETS RECEIVED.

Report of the Commission to Investigate Measures for the Relief of Consumptives. January, 1907. Boston.

Ohio Hospital for Epileptics at Gallipolis. Sixteenth Annual Report for the Year Ending November 15, 1906.

Pediatrics. The Hygiene and Medical Treatment of Children. By Thomas Morgan Rotch, M.D. Fifth edition, rearranged and rewritten. Illustrated. Philadelphia and London: J. B. Lippincott Co. 1906.

Twenty-eighth Annual Report of the State Board of Charity of Massachusetts. 1907.

Insanity Cured by a New Treatment. Details of Twenty-one Cases. By C. W. Suckling, M.D. (Lond.) Birmingham: Cornish Bros., Ltd. 1907.

Fifty-first Annual Report upon the Births, Marriages and Deaths in the City of Providence for the Year 1905, including Tables for Fifty Years. Providence, R. I. 1906.

The After-Treatment of Suppurative Abdominal Drainage Cases. By Charles T. Souther, M.D. Reprint.

Vaginal Tampons: Some Points of Practical Interest. By Charles T. Souther, M.D. Reprint.

Fundamental Principles that Persuade to a New Education of Medical Science. By W. R. Dunham, M.D. 1907.

Annual Report of the Library Committee of the College of Physicians of Philadelphia for the Year 1906.

An Account of the Library of the College of Physicians of Philadelphia. 1788-1906.

Annual Report of the Bureau of Health for the Philippine Islands. July 1, 1905–June 30, 1906. Manila. 1906.

Some Points in the Surgery of the Brain and its Membranes. By Charles A. Ballance, M.V.O., M.S., F.R.C.S. Illustrated. London: Macmillan & Co., Ltd. New York: The Macmillan Co. 1907.

Students' Aids Series. Aids to the Diagnosis and Treatment of Diseases of Children. By John McCaw, M.D., R.U.I., L.R.C.P. Edin. Third edition. New York: William Wood & Co. 1907.

Students' Aids Series. Aids to Medical Diagnosis. By Arthur Whiting, M.D., M.R.C.P. New York: William Wood & Co. 1907.

APR 8 1907 LIBRARY

Original Articles.

OBSERVATIONS ON THE CAMPAIGN AGAINST UNCINARIASIS IN PORTO RICO.*

BY BAILEY K. ASHFORD, M.D.,
Captain, Assistant Surgeon, U. S. Army,
AND
W. W. KING, M.D.,
Passed Assistant Surgeon, U. S. Public Health and Marine-Hospital Service; Honorary Members of the Porto Rico Anemia Commission.

Gentlemen, It would be wasteful of your time should we review the history, the older and now discarded theories of the pathogenesis of this disease, its fairly well-known symptomatology, its method of diagnosis and the long list of more or less worthless drugs which, from their fancied effect on the parasitic worm or upon the course of the anemia, have been from time to time recommended to supplant those whose efficacy is believed to outweigh any objections thus far brought against them.

We purpose bringing before you some hitherto unpublished data in connection with the work of the commission against uncinariasis and some which may be of interest in connection with the very practical question, "How can the ravages of this disease in Porto Rico be controlled?"

The data here reported were collected conjointly by the three members of the Commission of 1906–7, the absence of Dr. Pedro Gutierrez, the chairman of the commission, preventing him from taking an active part in the preparation of this paper.

We will first invite your attention to what is, to us, of paramount importance in the control of a disease which has for years decimated that otherwise healthful and rich island, impoverishing its laboring classes and rolling up an unprecedented mortality from a rapidly curable and preventable scourge. We refer to the usual mode of invasion of Necator Americanus.

Uncinariasis in Porto Rico is not only an interesting medical question but an all-absorbing social and economic one whose effect reaches out in every fiber of the social and industrial life of the people. We base our statement on a careful study of the endemic in that island, an experience extending over a period of several years, and including thousands of cases from practically all parts of Porto Rico.

We estimate that about 750,000 of the inhabitants are infected and that 70% are suffering in some degree, greater or less, from the effects of such infection. By a long series of cases, now considerably more than the 600 blood examinations reported in 1904, we have established the fact that the average hemoglobin of those complaining of symptoms is from 40% to 45%. From 5,000 to 7,000 persons, at least, have succumbed annually to this terrible affection, thus increasing by from 20% to 25% the total mortality for the island from all causes.

Variously attributed in times, luckily past, to malaria, starvation, climatic influences, habits of life, etc., to-day rich and poor, educated and unschooled, are learning that this anemia which from all time has claimed so large a share of the public attention is the outward manifestation of an infectious disease in epidemic form, an epidemic of such unheard-of proportions and fatality as to astonish those who have heretofore considered it to be a comparatively benign affection, as far as a menace to life is concerned. The mode by which the parasite invades the human body is clear, however strange it may appear, and has been reduced to concrete facts:

The larvæ from ova deposited upon the earth in the feces of the host, developing under proper conditions of shade, moisture and temperature, penetrate the unbroken skin of the feet of unshod laborers. These larvæ enter the veins, are swept to the right heart and from thence to the pulmonary artery, to finally become arrested in the smaller vessels through which they are unable to proceed owing to their size. At this juncture they break through into the alveoli of the lung, ascend the bronchial tubes, descend the esophagus, pass the stomach and eventually find a resting place in their preferred feeding ground, the upper part of the jejunum.

Not only have we been able to experimentally corroborate skin infection but we feel justified in saying that this is practically the only way the worm enters the body. We have never found a case which was clearly due to ingestion of the larvæ. The inhalation of infected dust does not merit consideration, as drying almost instantly kills them. On the other hand we have seen that 96% of 18,865 patients have acknowledged to having had an affection known the length and breadth of Porto Rico as a special and peculiar condition, not confounded with any other by those exposed to it, always acquired from contact of the bare but healthy skin with mud or muddy water, "mazamorra" or "ground itch." The word, "mazamorra" is not employed in Spain with this meaning. It is a common expression in Porto Rico, employed just as our laity here refer to urticaria as hives, and it is really uncinarial dermatitis. A very short time, from some minutes to a half hour, after standing, with bare feet in infected places, itching begins; in a day the part is covered with papules which later may become vesicles and, if conditions are favorable, but not necessarily as a distinctive part of the process, pustules and even ulceration may appear, the latter, of course, being due to concomitant infection by pus-producing organisms. This mazamorra and the anemia of Porto Rico are always found together, and both are seen in exaggerated degree where the most perfect conditions for the development of the larva from the egg and its subsequent desiderata, constant moisture and shade, are found,—the coffee plantation. On the other hand, both mazamorra and anemia are generally conspicuously absent among those who wear shoes.

The following experiment brings out in this connection a very interesting point and also demonstrates that we have in the guinea pig an

*Read before the Boston Medical Library Meeting in conjunction with the Suffolk District Branch of The Massachusetts Medical Society, Feb. 6, 1907.

animal capable of being infected by Necator Americanus, a fact likely to be of value in future experimental work.

On the 1st of March, 1906, the feces of a newly-acquired servant of the commission, heavily laden with eggs of uncinaria, was mixed in a Petri dish with such quantity of sterile sandy earth as to remove much of the offensive odor, a proportion of about one part of feces to two of earth. Water in sufficient quantity to give the consistency of mud was added, the dish covered and set away in the shade.

On the 4th of March larvæ were very plentiful to every field of a No. 3 Leitz objective. Some were moving lazily but the majority were apparently dead and lying fully straightened out. The immersion in excess of water of those which were before active brought all movement to a standstill. This effect was noted in about fifteen to thirty minutes.

On the 5th of March the dish having been slightly tilted overnight and about two tablespoonfuls of water added, all larvæ in the water which had collected at the lowest level of the dish, were motionless and straight, while those in the damp mud above this level were exceedingly active and encapsuled.

March 8 we found changes in the larvæ in the water which showed us that they were dead. Those in the damp earth were just as lively as before.

We took a four-day-old guinea pig, reared under conditions where infection by uncinaria was practically impossible, clipped the hair from its back without subsequently shaving the area, made a mud poultice in cheese cloth about the size of a silver dollar from the upper part of the contents of the Petri dish in which the larvæ were found so active and bound it gently on the animal's back, the pig being held for a half hour by the feet and head to avoid contact of its mouth with the mud. At the end of that time the spot was appropriately cleansed, rubbed well with absolute alcohol and the animal returned to its cage.

The behavior of the pig after the first five or ten minutes was remarkably suggestive as he squealed and squirmed with unmistakable desire to scratch. March 9 the same procedure was repeated, the gentleman who had stocked the culture officiating as guard over the animal's feet. The same struggling took place in about the same time, and the man remarked with an appreciative grin that the pig was suffering with mazamorra.

On March 10 the same application was made. The pig seemed well. *Absolutely no uncinarial dermatitis had developed in these three days.* That night the pig died; the jibaro said that he had noticed him about six hours before and that he had a very blue nose and seemed *triste* (sad).

Necropsy. — No edema; skin at site of infection, stomach, intestines, peritoneum normal. The kidneys and the liver were violently congested, but showed no larvæ. On opening the chest the cause of death was seen: the lungs were hemorrhagic. One lung was solid with blood and the other filled with dark red, almost black, spots. One of these spots was excised, crushed between two slides and examined with a No. 3 Leitz objective. *Ten encapsuled larvæ were found, all very active, wriggling with an exceedingly violent movement.* They seemed to overcome by their enormous strength all obstacles, breaking up lung tissue wherever it opposed them.

The larvæ seemed to be in the alveoli and are prone to seek little pools of blood.

The heart's blood was examined without result. Nothing else was found to be abnormal.

A very interesting deduction, among others more important and quite obvious, without any special attention being drawn to them in this paper, is that the so-called "natural cure," to us, a rather trying process with so sure and rapid a remedy as thymol, is possible in a heavily infected country, provided that stout shoes are worn and further uncinarial dermatitis avoided. The fact that the ova of uncinaria never develop into larvæ in the intestine of the host, coupled with the fact that we have not seen infection to occur save by the skin, not only explains why patients sick of anemia in the mountains gradually get well on taking up their abode in the cities of the island where the mud of streets, even though subject to occasional contamination, is subjected to drying fatal to the life of the larvæ. It explains why the soldiers of the Porto Rican regiment, almost universally infected on presenting themselves for their first enlistment, but not to an extent to be noticeable and thus to incapacitate them from acceptance in the physical examination for the service, are such perfect specimens of manhood after a few years, even in less time, from the day they were compelled to wear shoes and received the ample food and solicitous care bestowed upon them by their officers. Their alertness and physique are commented upon wherever they go, and they furnish excellent examples of what can be done by the redemption of the Porto Rican jibaro.

The pathogenesis of uncinariasis. — Those who have seen much of the disease in its more advanced stages, and especially those who have made a series of necropsies, are apt to feel that the most probable cause of the anemia is hemolysis. Those who believe that the reduction in red cells and hemoglobin results from hemorrhage should take seriously into account the fact that the appearance of a bloody stool is truly a rare occurrence in Porto Rico. Of the thousands upon thousands of specimens of feces personally examined by the members of the commission working in their own dispensary, under conditions where every visit of the patient called for a microscopic examination of feces, we can freely say that not more than 0.5 per thousand contained the slightest trace of blood that could be detected by macroscopic inspection. They usually showed nothing whatever that could be regarded as peculiar to the condition. A slightly greater proportion, but not over one per thousand, was found on microscopic examination to contain

red blood corpuscles in appreciable numbers. We exclude, of course, cases of bilharziosis and amebic dysentery.

As to occult blood, there seemed to be no special reason to examine for it. Knowing the condition of affairs in the jejunum, we were satisfied that tests would reveal it. Should we prove this by the report of a series of cases we should not be able to claim that it was even a potent cause of the anemia. And all this is irrespective of the fact that, as a result of numerous other causes, occult blood can be detected in the extremely small amount which it is reasonable to suppose would be lost by the minute wound inflicted by so small a parasite. In our twelve necropsies of this year and those of the last, we have only once seen the rose-red ecchymoses described in the older works as occurring in the jejunum. In all save this one it would have been very difficult indeed to have found the point of attachment of a worm, after it had become detached.

In the case we were able to see the little red points, which were very small and only noticeable by holding the cleansed intestine against a good light and looking through it, the patient had not received any specific treatment. This case was the only one in this year's series in which no anthelmintic had been administered. Had we not held the intestine up to the light we probably would not have noticed these spots. A number of them were removed and were found to present very minute and superficial erosions with no invasion of the submucous tissue.

The point we wish to emphasize is that there is nothing distinctive about the stool of an uncinaria patient, at least as far as the presence of blood is concerned and as regards the gross appearance. This is not alone our experience but that of others, for the occurrence of bloody stools is denied by many Porto Rican physicians who are working on this disease, and we have yet to hear one state that he had found it a distinctive feature.

It is certainly a great error to designate this worm a blood sucker, for by using this expression we imply that not only is blood his normal food but that he abstracts a sufficient quantity to bring about in part the pronounced anemia of uncinariasis. That he does swallow, and even suck very small quantities of blood in feeding on so vascular a substance as the intestinal mucosa, we do not deny. Nor is there any doubt that an exceedingly small quantity of blood does reach the intestinal canal of his host and that it can be demonstrated as occult blood in the feces. In the rare instances, cited by various authors, of the loss of considerable amounts of blood, the animal probably punctured a large vessel.

We do not believe it possible that any degree of anemia could be produced by the loss of the small amount of blood ingested by these minute creatures.

The food of uncinaria is shown when we come to examine the beautiful, almost diagrammatic photograph of the worm *in situ*. This is a photograph of one of a number of uncinariæ which we removed from the cadaver, while the parasite was still alive and feeding, with a portion of the intestine to which they were attached. They were dropped immediately into alcohol. These specimens were imbedded and sectioned very skillfully by Dr. W. M. Gray at the Army Medical Museum and the accompanying photographs were also made by him, as were all others we take pleasure in being able to show you.

There are, at least, two valuable lessons to be learned from a careful inspection of these photographs of the worm *in situ:*



Photographed by Dr. W. M. Gray.

Fig. 1. Necator Americanus attached to the human jejunum. x 55 diameters.

(1) The lesion is practically confined to the mucosa. (2) Although the animal had drawn into his mouth the submucosa which has become completely denuded of epithelium, among the contents of the intestine of the parasite the conspicuous objects are epithelial cells, not red blood cells.

The picture here shown corresponds in every particular with a previous description and photograph published by Loos in "The Anatomy and Life History of Agchylostoma duodenale," *Records of the Egyptian Government School of Medicine*, vol. iii, Cairo, 1905.

We feel obliged to conclude that the epithelium lining the intestinal canal of the host furnishes the normal food supply of Necator Americanus, just as he previously describes it to be that of anchylostoma duodenale.

In conclusion we wish to note that in the immense majority of about 80,000 uncinariæ counted personally by us in the stools of our patients after the administration of the anthelmintic, as well as in those attached worms found in the intestines at necropsy, the worms did not appear to contain blood but were generally grayish white. In fact this peculiarity was made use of in the device adopted for their recovery

from the stools, which were washed slowly down a trough painted black, the stool having first been filtered through gauze. In a report on ankylostomiasis by Löbker and Bruns, 1906, we find the following:

"The views of Loos were substantiated by Schaudinn, after a careful re-examination of a large number of Leichtenstern's sections, when the intestinal contents of the ankylostoma were microscopically examined. Among 300 worms selected at random, he found 196 whose intestines contained cell fragments other than blood cells. In the remainder he found either nothing or else blood cells to a greater or lesser amount. Repeatedly long strips of intestinal membrane were traced, completely extending from the mouth through the alimentary canal into the intestine of the worm."

This is important information when we remember that Leichtenstern was the observer of all observers who was most identified with the teaching that ankylostoma duodenale was not only a blood sucker but was so prodigal of his food that he consumed blood entire to appropriate only the serum, evacuating blood cells practically unchanged. For this the noted authority dubbed the worm, "the luxurious parasite."

The urine in uncinariasis before and after treatment. — In the first report of the Porto Rico Anemia Commission it is stated that albumin is rarely found, although note is made that the kidneys may be very pale and slightly fatty, sometimes being the seat of parenchymatous or interstitial inflammation, sometimes of amyloid degeneration but, generally speaking, without marked involvement of these organs.

We would like to considerably modify our former opinion. It was based on the examination of a series of cases but was not made, as was the blood, a matter of special study, inasmuch as Heller's nitric acid test and the absence of clinical evidence gave us no clew to the real condition. It is significant that writers on uncinariasis make practically the same statement. As a matter of fact, the condition of the kidney in a well-marked case of uncinariasis is of the greatest importance, as will be shown. We noted the irritant effect of the anthelmintic drugs employed upon the digestive tract and found albuminuria after their administration, in accord with the experience of Loebker and Bruns, Calmette, Siccardi, and others with thymol and male fern.

Our plan for 1905, among other things, was to make a careful study of the therapy of uncinariasis and to that end a series of cases was studied in which the uncinariæ expelled were counted after each anthelmintic dose. This, together with manifold other duties, consumed about all the time available from the actual administration of so large a work as the treatment of some 25,000 persons.

From the first, however, our attention was attracted by one case to the immediate and imperative duty of more carefully investigating the urine. This was one in which nephritis occurred during treatment. Naturally, the first thought was, "Has the new anthelmintic, betanapthol, said to be at times a renal irritant, anything to do with this condition?" The second, "Is there a latent renal lesion present in the disease?" To determine these facts an additional series of cases were taken and our results follow with conclusions; but before considering these tables a few explanatory remarks should be made:

It was manifestly out of the question, for lack of time, to make complete quantitative urinalyses as we desired. The day was so split up by other work and other investigation that it was decided to elicit certain facts only, and these with great care, so that a definite conclusion could be reached.

It was evident that an examination of the urinary sediment, as well as a determination of the presence or absence of albumin, should be made. In order to offer a series of cases carried far enough to furnish evidence that would be satisfactory, the continued presence of the patients in hospital was necessary, and this was precisely the most difficult part of the problem, as when they felt better they clamored to go back to work and stood not on the order of their going but frequently went, spoiling for us many hours of toil. The original number of such cases is, therefore, reduced to twenty-four. The practical impossibility of obtaining the twenty-four hours' urine and the numerous time-consuming details to which we were obliged to attend personally, prevented us from making urea estimations. One of the occasions at which the urinary examination was needed was that at which purges had to be administered, and with the small force at our disposal collection of all the urine was impracticable. The invariable custom was to examine the urine on the day before and the morning of the day of treatment, before the anthelmintic was given; then the afternoon urine on the day of the specific drug and the morning after. Thus there were two examinations before and two after each administration of the anthelmintic and the samples were faithfully taken at the same time by our trustworthy nurses in the field hospital.

Albumin. — Three tests were always used at each analysis:

(1) The boiling of urine with a drop of two or acetic acid to six parts urine and one part saturated salt solution, the test tube nearly full and the upper half boiled to compare with the unboiled lower half in a good light against a dark background. We were aware that a very faint clouding could be thus obtained in many normal urines. (2) The ferro-cyanide of potash test. (3) Heller's nitric acid test. When the first was faintly positive and the last negative, a slight trace was noted; when the latter was positive in a faint but characteristic ring, not disappearing on heating, a trace was noted. Only a very few times was albumin found in considerable amount. Ordinarily the amount was so small that its percentage could not have been determined by the Esbach albuminometer. The sediment was collected after

standing some hours in conical test glasses and the urine was not centrifugalized. The casts were generally of the smaller varieties, hyaline and finely granular forms predominating. Blood casts were not seen in this series and epithelial casts were uncommon. Fatty casts were quite often noted. The presence of polymorphonuclear leucocytes was at times discovered before the administration of the anthelmintic, and there was a tendency for them to appear, sometimes in fair numbers, afterwards. Renal cells were not a very marked feature and were almost always scarce.

Urobilin was almost always present, fluorescence by the zinc chloride test being elicited, but it was often remarkably slight.

Peptones in traces were found to be inconstant but often demonstrable.

Indican in abundance, as Siccardi recently states, was a very constant and persistent phenomenon.

Bile pigment was relatively rarely found.

A most interesting fact was the invariable absence of the *diazo-reaction*, save immediately after the administration of beta-naphthol, in 1- or 2-gm. doses, *when it never failed*. Its presence was demonstrable three to four hours after the dose and its effect lasted five or six hours. The next day it was always absent. When it was present it was beautifully pronounced and was an unfailing evidence of whether or not the drug had been taken. The *color* of the urine was frequently some shade of olive after thymol, a color developing or deepening on standing in the open air. Apparently, beta-napthhol did not affect the color of the urine. The *reaction* was practically always acid, rarely alkaline or neutral, as Calmette found in his cases.

The *specific gravity* tended to be low but almost always increased under medication. *Sugar* was not found to be present.

From the tabulation of the twenty-four cases in which successive urinalyses were made the following condensed statement embraces the essential facts: 18 were males, 6 were females. Seven under fifteen years of age; 12 were between fifteen and thirty; 5 were over thirty. One case expelled no uncinariæ, had no symptoms of the disease but expelled 418 oxyurides in two doses of beta-naphthol (all she harbored). Two of the remaining 23 were suffering from a very light form of uncinariasis; 3 from a light grade; 4, moderate; 10, intense; 4, very intense. Thymol was the only drug employed in 10 cases; thymol and male fern in one case; beta-naphthol alone in 13. The total number of doses of thymol was 45 and of beta-naphthol, 62. The dose of thymol was 2 gm. in children, and from 3 gm. to 4 gm. in adults; that of beta-naphthol 1 gm. in children, and from 1 gm. to 2 gm. in adults. These doses were always preceded the night before by sodium sulphate and followed in two hours by the same drug. The anthelmintics were always administered by dividing the dose above mentioned into two equal parts, one given at 8 and the other at 10 A.M. Male fern was given but twice in this series. These two doses were given successively to the same patient, 2½ and 4 gm. respectively, and resulted in the expulsion of only two uncinariæ. The alcoholic extract was used in each instance and it was presumably fresh as it was employed immediately after it arrived by mail from one of the best known pharmaceutical firms in the United States. This was not the only occasion upon which we used male fern, and its failure to expel Necator Americanus was observed in several other trials where the preparations of other firms were used. In this particular case this observation was especially interesting as one week after the fruitless administration of male fern only 3 gm. of thymol were given and by this one dose 3,686 uncinariæ were expelled from the same patient.

Of the 23 who expelled uncinariæ, in 1 case the worms were not counted. In the rest, 9 expelled less than 300 and of these 2 had no albumin in their urine before the administration of the anthelmintic; 5 had a slight trace; 1 a trace; 1 a considerable amount. Eight expelled between 300 and 1,000 uncinariæ and of these 1 showed no albumin before treatment; 6, a slight trace; 1 a considerable amount. Three expelled between 1,000 and 2,000 and of these 2 showed a slight trace and 1 a trace of albumin before the drug. Those who expelled more than 2,000 uncinariæ (one 2,749; the other 4,397, the largest number expelled in our series of worm counts) gave only slight traces of albumin before treatment, demonstrable solely by boiling.



Photographed by Dr. W. M. Gray.

Fig. 2. Necator Americanus attached to the human jejunum. x 200 diameters.

Of the total of 24 cases, 20, or 83.3%, are seen to have had albumin in the urine before the administration of anthelmintics. One of these cases was not one of uncinariasis and had no albumin nor casts, but developed a very slight trace of albumin under treatment. In 18 of these 20 cases, or 75%, casts were also demonstrated. Generally the casts were very few in

number; in only 6 of the 18 were they at all abundant. The average hemoglobin in those persons showing albumin before the administration of the anthelmintic was 46.1%; that of the 4 who had no albumin before the dose was 80.5%. Sixteen of the 20 cases showing albumin before taking the specific drugs had but a slight trace; 1 a trace; 3 a fairly abundant amount. Albumin increased in amount under treatment in 15 cases and appeared for the first time after the anthelmintic in 4, a total of 19. Albumin did not increase under treatment in 5 cases, although it existed at the beginning. Finally, of the 220 urine records here recited, 118, or 53.63%, showed but a slight trace of albumin; 34, or 15.45%, a trace; 19, or 8.63%, a moderate amount;



Photographed by Dr. W. M. Gray.

FIG. 3. Contents of the intestine of the same worm. x 200 diameters.

and 22, or 10%, much albumin. Twenty-seven, or 12.27%, showed no albumin. Hyaline casts were demonstrated in 133 of these examinations, in 100 of which they were few in number; granular casts in 103, in 71 of which there were few; epithelial casts in 21; fatty casts in 23. Of the 41 records of moderate or much albumin, about two thirds occurred after the administration of anthelmintic drugs.

Conclusions. — Our conclusions are not based alone upon this series of cases, but embrace a much larger number of observations, too scattered to place in tabular form. It is believed that the data contained in the series of 24 cases represent what is generally found before and after the administration of thymol and beta-naphthol.

1. Albuminuria with tube-casts is a very common phenomenon in uncinariasis.

2. It may be present in light or severe cases, more constant in the latter.

3. Albumin is present generally in very slight traces, not discernable by the Heller nitric acid test, but is usually accompanied by a few casts.

4. The casts are generally hyaline, finely granular and fatty; rarely epithelial unless the epithelial cells are very fatty when they are classed as fatty casts. Blood casts are very rare.

5. Albumin may be present in light and heavy infections.

6. Albuminuria with casts in uncinariasis should be regarded as the evidence of a degenerative process in the kidney, not as an inflammation or, more specifically, a nephritis.

7. Both thymol and beta-naphthol can act as renal irritants, especially in the presence of this condition of the kidney.

8. While ordinarily these drugs cause an increase in albuminuria and often bring it about where before it was absent, their effect is temporary, causes no symptoms in the vast majority of cases and is rarely of importance.

9. There is almost always an absence of inflammatory elements after the above-mentioned increase in albumin.

10. Very rarely they may set up a severe nephritis.

11. The cases herein cited show that both drugs seem to have an equal power to increase in albuminuria with tube casts, but our experience over a large number of cases demonstrates to us that, all things considered, beta-naphthol has a very much less favorable action on the kidney and that it is not as safe as thymol for this reason, although its depressant effect is not so marked. Thymol has not, in our experience, caused fatal collapse.

12. Albuminuria does not always seem to depend upon the grade of anemia.

13. Albuminuria and the changes found in the kidney after death may be due to a specific toxin elaborated by uncinariæ, but where severe anemia exists such an explanation for the condition is hardly needed.

14. Uremia in Porto Rico is not uncommon, but is rarely seen by a physician and is confused by the jibaros with "nervous attacks" of all kinds, particularly with the very common hysteria major. Epilepsy is not uncommon and we are persuaded that sometimes this diagnosis would suffer a change on examination of the urine. We know of several instances where there was good ground for believing that the attacks were uremic in character.

15. Emphasis must be laid on the fact that the albuminuria of uncinariasis is extremely irregular, coming and going without the slightest apparent reason.

16. Renal accidents from the use of the anthelmintics under consideration are not generally serious and are still more rarely fatal. The great severity of the present epidemic and the high mortality should make us disregard the remote danger to the patient from the use of thymol.

17. The use of beta-naphthol should be restricted to very few doses and its administration should be limited to patients in extreme grades of the disease, on account of its less depressing

effect on the vital centers, until enough uncinariæ are expelled to create a favorable reaction and enable us to use thymol. However employed, a dose of 2 gm. should not be exceeded and no more than three successive doses given, one each week.

In concluding this paper we desire to call attention to the possibilities for scientific investigation in the work which the Porto Rico Anemia Commission is now accomplishing.

The insular government is doing all in its power to conquer the reigning disease of its working classes but for some time this compaign must be vigorously pushed to restore health and to save life. Face to face with an enormous number of sick it would be manifestly impossible to divert funds for the further investigation of the diseases of the island in a well-equipped laboratory, yet such an institution is urgently needed, as none realize more fully than the commission itself. To the honor of the physicians of Porto Rico let it be said that they have equipped themselves with microscopes and a few of the more necessary clinical laboratory instruments, from their own personal resources. This is not confined to one or two but is general among the large number who see the necessity for recourse to so valuable an aid to diagnosis. This fact more than all others demonstrates the active and intelligent interest in medical progress in Porto Rico and bespeaks a spirit which merits support.

There is an aged physician in one of the small towns, all his life a scientist, who has secured a modern microscope from Germany a year ago at great personal sacrifice, that he might keep abreast of the advance of medical knowledge. This physician is now pursuing original investigation under conditions which would infallibly paralyze the ambition of the majority of young men and is setting an example to be emulated by all who bear the title of Doctor of Medicine in this country. The example is followed, however, and there are many who are making splendid use of the microscope in towns of the interior where one would least expect to find an instrument too commonly regarded as only fit for the laboratory.

Were a laboratory for research provided, it would be of incalculable value to the many who to-day have no adequate place where such scientific work can be done; the commission would receive a powerful weapon to advance its ever-widening sphere of action; and perhaps the foundation could be laid for a school of hygiene which would be valuable to American as well as to Porto Rican physicians, which may some day contribute to the knowledge of diseases affecting countries beyond its shores.

When we reflect on the real state of affairs, when we ask ourselves the question, "Where did ninety-nine of a hundred physicians practicing in the tropics receive their medical education?" we begin to see where the difficulty lies. Whether a man is an American or a Spaniard he has usually studied his profession in northern climates. The diseases seen in his clinical course were those of temperate zones and he is apt to explain the phenomena of disease according to the light he received.

There should be some way of acquainting American and Porto Rican physicians with special features of preventable disease in that island where such efforts are being made to carry the principles of the science of medicine into practice.

As it is, men who are not satisfied to trust to tradition to solve the problem arising in their professional life grope aimlessly about for some center where they may work out for themselves, or have worked out, those facts which alone can be resolved in a well-appointed laboratory.

Such a center, by interesting all physicians who come in contact with the poor on the one hand and local officials on the other, would be able to carry the authority derived from facts and figures into their great task of sanitary reform.

THE EFFECT OF INDUSTRY ON HEALTH.*

BY WILLIAM C. HANSON, M.D., CAMBRIDGE.

The recent investigation of health conditions of industrial life by the State Board of Health of Massachusetts is the first definite step in the development in America of industrial hygiene. For this step credit belongs to the promoters of the necessary legislation, to the legislatures of 1904 and 1905, to our efficient State Board of Health, but most of all to the secretary of the board.

No legal provision was made requiring the employment of scientific men for the investigation, but Dr. Charles Harrington, realizing the importance of preventive medicine and, therefore, of encouraging specialization in sanitary work, saw that just as an expert may trace typhoid fever to a polluted water supply of a workshop, so one versed in medicine and hygiene may trace chronic lead poisoning to improper devices for the removal of lead fumes from furnaces containing kettles of molten lead. In fact, Dr. Harrington even went so far as to announce to one of his classes in hygiene in the Harvard Medical School that only graduates of medicine or those receiving degrees on Commencement Day would be eligible for the work.

Moreover, no legal provision was made for the careful consideration of conditions from a commercial point of view in connection with the hygienic investigation, yet one of the points insisted upon by the secretary of the board was that no injustice should be done to employers.

In short, an attempt has been made to establish the factory inspection work on a scientific basis. In order to do this, it has seemed clear to the State Board of Health that special pains should be taken to assure the employers that the work is not only free from anything underhanded, but that it is of such a nature as to enlist their hearty co-operation.

*Read at the regular meeting of the Monday Evening Club, Feb. 18, 1907.

The subject of industrial hygiene is at once broad and complex, and the brief time allowed for the investigation has permitted only a preliminary basis for further study and development. At the same time, a sufficient number of establishments has been examined in several industries to warrant certain definite recommendations to the legislature providing for a more efficient protection to the health of the operatives than now exists.

Without entering into details it is necessary before considering our subject to define carefully just what is meant by "dangerous trades." One of the first things which ought to be done for the good of all is to revise the lists of the so-called "dangerous trades." A feature strongly to be condemned is the enumeration of a large number of occupations as being more than others conducive to disease, without discriminating between an entire industry, the greater part of which may be conducted within reasonable limits of safety, and the few trades which from their very nature are intrinsically dangerous. Moreover, with any classification there is need of an accompanying table of some sort to show that other causes as well as occupations have to be reckoned with.

Charts are arranged, and are frequently placed in the most conspicuous parts of exhibition halls, to show by their hideous black lines the death-rate from consumption of men in various occupations. Do the persons responsible for such displays realize that they are producing mental pictures in the minds of the young which are immeasurably wrong and difficult to erase? Do they not forget that overcrowded localities, such as the slums of large cities, furnish all the conditions which favor a high mortality, *viz.*, "unsanitary dwellings, immorality, intemperance, high birth-rate, carelessness, ignorance, filth and improper and insufficient food"?

There is no question but some of the highest death-rates occur in manufacturing communities and that unsanitary conditions in industrial establishments are to a certain extent responsible; but it is undeniably true that the number of occupations, referring to the trade as a whole, which are directly accountable for ill-health and disease — at least in the State of Massachusetts — are few.

This fact by no means lessens the importance of protecting the health of our employees in workshops, and of protecting the public in their daily contact with the working people. It does, however, suggest that it is time to call a halt on the custom of stamping with condemnation many of our industries merely because of those trades which make up the dangerous minority and because of the recognized harmful conditions which, while existing, are readily amenable to law and an effective governing body.

From a sanitary point of view all industrial conditions may be classified for practical purposes into two main groups, as follows:

I. Conditions which arise from the industry.

II. Conditions which are in no way connected with the industry, — that is to say, conditions which are not indispensable to an industry.

Among the first group of conditions are dangers which are direct and obvious in their effects upon the health of the workers: some of these dangers, are avoidable; others are to a certain extent avoidable; while others are entirely unavoidable.

An example of unavoidable conditions may be found in the textile industry — an industry much abused by health critics who complain of the effects of textile processes upon the health and welfare of the workers. At times, for instance, in the carding-room of a cotton mill, the cotton dust, although always present to some extent, flies about the room like snowflakes and covers the hair and clothes of the workers. The reason is that the metal-toothed cylinders become clogged from time to time with waste fibers and need to be cleaned. It is the cleaning that scatters the dust. Attempts have been made, with more or less success, to obviate this objectionable feature, but until the machine manufacturers shall devise some practicable means for getting rid of the dust we must not blame the employers.

I am not saying that cotton manufacturers cannot improve present conditions; they can improve them, and they ought to be compelled to do so, but we must distinguish carefully between the changes which the employer cannot reasonably be expected to make for his employees at the present time and the changes which, regardless of his wishes, can be made and ought to be made.

It should be remembered that our best mills, with their large, well-ventilated workrooms, and the older mills which are under the ablest supervision, are progressively attacking from a commercial point of view the very problems which go hand in hand with improved hygienic conditions. The emphasis of danger, therefore, should be placed not upon the textile industry as an industry but upon those departments wherein the dangers arise.

An example of the *avoidable dangerous* conditions incident to an occupation was seen in a large wire manufacturing establishment containing, among other departments, a room for tempering wire. After the men harden the wire by running it into the crude oil, it is passed through kettles of molten lead inside the tempering furnaces to be "tempered." The lead is heated to the melting point and the wire is drawn through, heated red hot. In this room there were found a number of tempering furnaces where the work was conducted as described. The room was uncomfortably hot and was filled with a dense blue smoke arising from the furnaces. One employee, who had been here for thirteen or fourteen years, showed on examination distinct evidence of chronic lead poisoning, and on questioning him it was found that four years previous he had what is known as the "wrist drop," and that he had suffered from other symptoms of lead poisoning. Three or four other cases of lead poisoning were reported as originating in this room; one employee of five years' standing had been a lumberman, robust and healthy; he now

presented symptoms of chronic lead poisoning. All of the employees in this room worked eleven hours a day and had irregular hours for eating. There were no rules concerning the duties of the employers or those of the persons employed in order to avoid this serious danger. On the contrary, the hoods and blowers and top ventilators for the lead and other fumes were found to be distinctly inefficient, and over one large furnace there was no protection of any sort, — the appliances having been broken years before and none renewed, so that all the fumes mingled at once with the air of the room.

The more important of the two groups of conditions for our consideration this evening is the second —which includes those conditions that may give rise to injurious results because of the disregard of proper hygienic precautions. It is this class of conditions which is mainly responsible for the means of spreading disease in our workshops; and it is this class of conditions, which exists more or less in every industry, which is responsible for branding so many trades as " dangerous, " which so far as the processes are concerned are perfectly harmless! It is the very same group of conditions which exists in the homes of the working people.

The improvement of sanitary conditions in workshops is the great problem confronting us to-day. Its solution will prove to be the connecting link between the community work on the one hand and the social service and hospital work on the other; and equally energetic action is demanded for the protection of the working people in industrial establishments as for the protection against diseases caused by the distribution of impure and dirty milk. In both cases the welfare of the public is inevitably involved.

There is no better illustration of bad workshops, and of the unnecessarily foul conditions in the state of Massachusetts to-day than our bakeries. Bakers, again, are notoriously classed in the list of workers most subject to disease. But why? The reason is simply because the majority of rooms in which baking is done in our Commonwealth do not deserve the name of " bake-rooms." Cellars, back storerooms, rear tenement quarters and sheds are by no means the exception, and so many of these contain toilet and dressing-rooms that one accustomed to examining them carefully becomes compelled to think of dressing-room and bake-room as one and the same.

In some of the largest cities in this state two thirds of the bake-rooms exist under conditions which are decidedly unhygienic and unsanitary. In one city two fifths of the bake-rooms show conditions which are thoroughly bad, and half of these have water-closets which are literally within or communicate with the bake-rooms! It would not require much imagination to suggest the possibility of an outbreak of typhoid fever from direct infection through the food substances handled by an employee who had become infected by contact with the stool of the original case, or himself had become infected with the disease. Even if it is urged that baked goods have been subjected to a cooking process, the employee who handles them after they are cooked may have become infected through the original case. Outsiders, too, not uncommonly frequent the bake-rooms, and it is not too much to suppose that — as the water-closets are so handy — an epidemic might arise from such a source. At all events, a water-closet in or near a bake-room is positively uncalled for; it is filthy; and it is a gross violation of common decency.

Legislation should be enacted and enforced to remove not only all water-closets which are within or communicate with the bake-rooms in this Commonwealth, but those water-closets which lead out of bake-rooms, whether by one door or two doors, provided they are situated in close proximity to the bake-rooms.

The enactment of legislation, however, does not relieve us of our most important duty. It is by buying our bread of bakers who keep themselves clean and keep their rooms clean, and by refusing to patronize slovenly men who do their baking in rooms which are unfit for toilet-rooms, that we can do most to correct existing evils.

I recall a bake-room of the most deceptive type. A very attractive front store with its display of baked goods faces the sidewalk. As we enter the store the picture is a pleasing one. There is a new maple floor, the walls are sheathed with wood, and the ceiling is adorned with a fancy tin sheathing. Everything is in the open and is clean and neat. Now let us take a look into the room where the food products are kept and handled. It is situated in the rear in a back yard. It is an old room, low-studded, with a smoky and more or less broken plaster ceiling. The floor is old and dirty, and between the boards are large cracks filled with accumulated dirt and food materials. Beneath the oven and around and under the sink the amount of dirt is especially noticeable. A table near the sink is filthy. The light in the room is poor, and gas jets are made use of on cloudy days. The room is small and has several occupants. A trap door leads to the cellar, which contains — in addition to food stuff — thick masses of cobwebs, various kinds of dirt, and a foul water-closet.

It has been said that many conditions affect the health of bakers, *e.g.*, exposure to excessive heat, to the smoke in doughnut frying, to the constant smell of foods, the irregular hours for eating, flour dust, gas from burning coke, and the long indoor confinement. Any one who realizes that men are working under these conditions and in basements which are unventilated and absolutely foul need not wonder that bakers have a lowered resistance to disease and are especially prone to consumption.

Let us enter one of these bake-rooms; a subterranean kitchen which is, roughly, about 60 x 20 feet and low-studded. The poorly-lighted room necessitates the use of several gas burners throughout the day. The air is foul. In the room is a baker who has been in the business twenty-eight years, and in this shop thirteen years. He gives every appearance of a consump-

tive and admits that he has "some lung affection" and that he "raises something," and he is seen to spit upon the bake-room floor. This man's mother, four sisters and two brothers, all died of consumption. He has a brother living. The man says that he works in this dark, unventilated cellar from half past four in the morning until three or four o'clock in the afternoon, and that he goes out-of-doors only for about one hour out of every twenty-four hours. There are in this same room four other men and a boy.

But I would not have you leave to-night without the knowledge that some of the bakeries present entirely satisfactory conditions from a sanitary point of view. Of over 500 bakeries and similar establishments visited, 55 are in this class, and 11 of the 55 deserve special commendation.

Throughout the investigation of the State Board of Health the underlying principle has been to condemn where there is wrong but to praise where good work is done, and in nearly every industry investigated, including those properly regarded as "dangerous," it was found that "one at least and sometimes not a few establishments were carried on with satisfactory regard for the health of the working people."

All the establishments visited have, so far as possible, been graded from a sanitary point of view. In one or two of the largest industries the plants have been compared and classified with reference to age and construction of buildings, the grade and amount of stock used in them and the processes in vogue.

There are four distinct grades of establishments: the excellent, the good, the moderately bad and the distinctly bad.

In addition to the examination of the factories, attention has been given to the welfare of the industrial community. Thus the attempt has been made to initiate a well-defined system of factory inspection resting upon a scientific basis.

To summarize briefly what has been said, you have had called to your attention three main points. The first is that the initial step taken in the study of industrial hygiene shows ample proof of the need of physicians to specialize in sanitary work. Disease may spread not only through water and milk, but through the overcrowding and otherwise bad and unsanitary conditions in homes, factories and workshops; and equally energetic action is demanded for the protection of the working people in industrial establishments as for the protection against diseases caused by the distribution of dirty milk, since in either case the welfare of the public is involved.

It is your duty to encourage specialization in sanitary work, for preventive medicine is of greater importance to the people at large than is curative medicine. I quote from a writer in the *American Journal of Public Hygiene:* "No such encouragement exists at the present time. The medical man who chooses to take up a special line of work should feel that he is making an upward step in his professional life. The medical man who is bold enough to step out of general professional work into the position of a sanitary executive — state or municipal — is, as a rule, placing himself in the hands of politicians who rarely appreciate the importance of the responsibilities resting upon them in dealing with sanitary problems."

The second point upon which emphasis has been laid is in behalf of the industries and the employers. The emphasis of danger in relation to a given industry should be placed where it belongs. If only one department of an industry is dangerous, the entire industry must not be condemned. Again, the harmful conditions commonly associated with many industries should not be so tabulated as to make it appear that the industries themselves are at fault.

So far as the employers are concerned, you should have the following considerations always before you:

First, that the employer, hampered by the nature and peculiarities of an industry and its processes, and by existing social conditions, may find that there are some things which he cannot do for his employees at the present time.

Second, that the employer finds that there are some things which he can do for the comfort of his employees to his own advantage, and

Third, certain conditions, regardless of the employer's wishes, directly or indirectly affecting the health or safety of the employees, can and ought to be changed.

Fourth, that while the employee is usually ignorant of the dangers to which he is exposed, and neglects to take necessary precautions, he may be subjected to conditions admittedly dangerous to health which though avoidable, are overlooked by his employer as well.

Finally (the third main point referred to) you must always consider whether outside influences may affect the health of an employee more than the conditions under which he is working.

In closing, I wish to add a few words from a physician's point of view. The physician can do more good to his patient and to the community if he keeps in mind his patient's work. At present he is unable to do justice to a large number of sufferers from want of a clear understanding of modern conditions in industrial establishments, — the effects of modern machinery and processes and of physical and mental labor upon the health of the workers. The whole nature of the individual needs consideration,—home life *plus* industrial life.

Social service work has, in one hospital, recently been made a part of the physician's duties in order to supply the missing information concerning the patient's home life, but as yet no opportunity exists for furnishing physicians with important data relative to the conditions of modern industrial life.

To diagnose and treat the disease is important, but to know the exact conditions under which the patient works for hours, days and years, and to know how he is treated as a human being, is of first importance.

I repeat, a proper development of this great branch of hygiene, now in its infancy, would encourage specialization in sanitary work. With

a more thorough state organization, sanitary problems would be dealt with by specialists, free from political restraint, who could emphasize, as has never been emphasized, the enormous importance of preventive medicine to mankind.

THE TREATMENT OF CHRONIC URETHRAL DISCHARGE.

BY BENJAMIN TENNEY, M.D., BOSTON,
Surgeon to the Boston Dispensary.

THEORY.

Considering how difficult it is to grow them outside the body, how short their natural life is in the incubator, and how easily their artificial growth is stopped by slight accidents of various sorts, it has always interested me to theorize as to how the gonococcus can exist so long and so prolifically in a canal which is thoroughly flushed with urine every few hours.

The most reasonable explanation to my mind is that within a very short time after infection, probably within a few hours, some of the bacteria which are very motile have penetrated some tiny duct where they are safe from the frequent flood of urine and can increase and spread to other ducts between urinations. In other words that there is a para-urethritis almost from the start.

Starting with the proposition that it is a possibility for a man in ideal health and surroundings and with a urethra of proper sort to acquire a specific urethritis for the first time and be free of all symptoms within three weeks, we are immediately faced by the fact that he has many brethren who are less fortunate, and the conclusion is plain that there must be a chemical or mechanical factor to account for the difference or else a combination of the two. Either the body fluids are lacking in the power to throw off the bacteria faster than they form or, in modern language, "the opsonic index is low" or else there is some mechanical obstruction to their escape.

That the former condition obtains with some patients I like to believe, because occasionally symptoms persist after weeks of attempt to smooth the way for the most remotely hiding diplococci to float away.

That the second is the almost universal cause for persistent urethral discharge as it is for persistent discharge from other and unnatural sinuses, I do believe, and so do most men if I understand their treatment correctly. A sliver, a silk ligature, a bit of necrotic bone or other tissue may keep up a continuous small discharge because the opening is not large enough for it to float out bodily. Enlarge the sinus or make a new opening through which the irritating foreign body escapes or remove it by pressure and the sinus closes and the discharge stops.

The analogy is not solely with the urethra which serves as a grand canal for the hundreds of little canals leading to the para-urethral glands, but with these canals and the ejaculatory ducts, the prostatic ducts, and the canals from Cowper's glands all of which drain into the same channel. At the beginning of any of these canals the desquamated cells destroyed at the first invasion by bacteria may form necrotic masses too large to pass through the natural exit without greater force than the gentle urging of the leucocytes which are themselves of a size to pass out and attract attention.

The idea of a vaccine by which the removal of bacteria may go on more rapidly than their increase is fascinating. Could the masses of dead and dying cells be rendered sterile, the blood currents would doubtless build a wall about them or carry them away; but the essential element in the new therapy is the handicapping of a definite bacterium by a vaccine prepared from the dead bodies of his own kind, and it is by no means certain that any one bacterium is the cause of all the long-standing para-urethral inflammations. It is not very uncommon to find a smear without Gram decolorizing diplococci and Dr. Charles Duval assures me that many intracellular Gram decolorizing diplococci will show luxuriant growth on agar.

After the well-meant efforts of ourselves and our patients and considering the varied and abundant flora of the normal urethra it would not be surprising to find that some other organism was trying to fill the place once occupied by the gonococcus, and can we have a vaccine for each infection? Until we do we must continue to work along lines which have given results satisfactory though often slow in coming.

With the chemical treatment of chronic urethral discharge in the way of drugs swallowed or used by the patient, this paper has nothing to do because I seldom order them, and in my office I only use silver nitrate in very weak solutions, hot salt solution, and occasionally cocaine and adrenalin.

PRACTICE.

The first ground to cover is to find the highest point from which the discharge can come and the rectal examination is the first one to be made after inspection of the urine. Rarely does one of these patients fail to show some signs of a past acute and present chronic inflammation in prostate or vesicle or both.

The nodular feel of an infected vesicle, and the masses of cells, cell membranes, and motionless spermatozoa in the washings after gentle massage are evidences which cannot be mistaken. The unilateral enlargement, difference in consistency between the two lobes, and the smaller plugs and shreds with large numbers of mononuclear leucocytes in the expressed contents are the main points in locating the prostate as a constant source of discharge.

If either of these conditions has been present for six months or more we may expect to find the membranous urethra contracted. I was taught that stricture formation never followed the first infection. This is a mistake. Stricture formation is often very slow. In one case of mine

where the membranous urethra accepted only a bougie No. 8 French, the patient had a single gonorrhea twenty years before, and had been happily married for eighteen years. During this time he had been free from symptoms and consulted me only on account of shreds noticed by an insurance examiner.

It is my belief that the location of the greater proportion of real strictures in the membranous urethra is due to the continuous irritation produced by the constant out-pouring of a purulent discharge from the prostate or vesicle which oozes down between urinations and keeps the mucous membrane hyperemic, even if it does not always cause actual destruction of tissue.

If prostate, vesicles and membranous urethra do not seem to afford sufficient reason for the existing discharge a possible source may be found in some para-urethral gland or glands which have never been completely drained, or in a small meatus which interferes with the free flushing of the urethra.

In my hands the prostatic infection has been much the most frequent of all, then the infected vesicle, then para-urethral glands, and tight meatus least frequent. The strictures I regard as sequences of some of these other conditions and as occasional causes of a continued discharge after a later infection simply because they interfere with perfect flushing and drainage of the canal.

With each and all of these conditions the endoscope will show inflammatory redness of the general urethral mucous membrane which is a symptom of a constant supply of irritating material from some definite source or sources and does not indicate that the whole mucous surface is one granulating area exuding leucocytes. On the contrary if careful search is made one can often find tiny dark red dots chiefly on the floor of the anterior urethra from which droplets of white secretion can be pressed between endoscope and outside finger and these droplets spread about are sometimes the cause of the general redness of a nearly normal mucous membrane.

The chronic prostatic inflammations vary much in the ease with which they will clear up. Some will drain out if the urethra is properly dilated, some will clear up under rectal massage, and some seem to be favorably affected by deep silver injections. Some improve with hot water lavage of the rectum and others so annoy their possessors that they gladly allow the surgeon to remove them.

With any form of treatment except the last with which I have no acquaintance, the time required to accomplish a cure is discouraging to all concerned. Occasionally it is a matter of weeks, but often it must be counted in months. The most obstinate case that I have yet handled required three months of attention, but at the end of that time, the patient passed a clear urine after coitus and the beer test and his condition has remained the same for at least two years more.

Some one has recently proposed an external urethrotomy for these cases followed by curetting and packing the prostatic urethra with gauze. If the curetting is very gentle and the packing generous it may be useful in some cases by encouraging free drainage from the long and tortuous prostatic ducts. It is an addition to our means of treatment which has yet to prove its value. To the writer the curettage seems unnecessary and likely to do permanent damage to this very sensitive region. Packing is a reasonable procedure which I intend to use on an occasional obstinate case.

Vesicular infections vary greatly in the care and time required for cure. Rectal massage clears up most of them; rectal lavage with hot water helps some of them; some remain for incision and drainage according to the plan of Fuller and a few for total removal.

The two latter operations are so rational and satisfactory that the chronic vesicular infection with its attendant maladies is definitely curable and within a few weeks, excluding the tubercular cases.

Another recent suggestion of Belfield's is the injection of the vesicle through the vas deferens, hoping thereby to flood the vesicle with a mild antiseptic and wash out all the dead and infective material. Anatomically this is possible and a simple proceeding after the canal has been found within the vas. The few reported results are all favorable and indicate that the canal remains patent after the washings are over.

If a case of infected Cowper's glands has passed through my hands I have not recognized it. It ought to be possible to see the orifices of their ducts when inflamed but I have never identified them in the living urethra. Considering the rather long duct one would expect an acute tumor rather than a chronic discharge as a result of infection here and several such cases are reported.

A cross section of the urethra anywhere between the triangular ligament and the glans shows two columns of glandular tissue. The smaller one lies above the urethra and rather between the two corpora cavernosa and the larger lies along the floor. The ducts leading from these glands open into the roof and floor of the urethra and are easily identified. Through these ducts the glandular masses are infected and in about half of my chronic cases those on the under side of the penis can be felt hard, often tender, and pretty freely movable against a sound.

At one time I thought these could be reduced by massage and used a special sound flattened on its convex surface for this purpose. The results were disappointing and I have given it up. Occasionally I have dissected out some specially large nodule and thought the discharge was diminished thereby.

The most effective treatment of this condition in my hands has been the sound of large diameter or some form of dilator. The effect of these instruments is to put the whole circumference and thickness of the corpus spongiosum on the stretch, dilating the little canals and compressing the glands at the same time. I think it is this effect rather than the stretching of " strictures of

large diameter" so often spoken of which assists in drying up the chronic discharge, and the instrument which will accomplish this with the least mechanical damage to the mucous surface is the best. Provided there is no continuous reinfection from above, these cases usually dry up within a few weeks.

The cutting of a small meatus is always desirable when it is tight for a 20 French calibre, but there is no necessity of giving the patient a hypospadias.

The treatment in every case is to be directed to the highest possible source of pus. A chronic urethritis may be and usually is present but it is a result of some localized infection outside the canal, a para-urethritis.

It is not perfectly easy to explain the action of washes on these cases. The urethra is normally washed several times daily and the mechanical effect of another wash cannot help much. That there is a bactericidal effect on the really infected para-urethral tissues is hard to believe, no matter what antiseptic is used, unless it be so powerful as to destroy the living urethral cells which no one would desire. If the fluid be hot or otherwise slightly irritating it probably produces a hyperemia about the infected portions which assists in the process of repair as elsewhere in the body, and this I believe to be their real value.

When our patients allow us to discharge them "cured" we ought to be able to guarantee them against stricture formation and I think we can if vesicles, prostate and urethral glands have resumed normal function and size. When the patient insists on stopping treatment at his own pleasure he must assume the risk of this personal accident as well as the social risks which make the saddest chapter in the study of genito-urinary diseases.

The source of a chronic urethral discharge fortunately is not difficult to find in the great majority of cases, and when found its removal is a matter of ingenuity and patience. The rare cases are becoming less rare as we know more about the embryology and irregular anatomy of these parts, and here the skill required to find the source of the pus is the great thing. The treatment is developed on well settled surgical principles which apply as well to the male urethra as to any other part of the human body.

THE CRUSADE AGAINST TUBERCULOSIS IN GERMANY.

BY EDWIN A. LOCKE, A.M., M.D., BOSTON.

(Continued from No. 13, p. 383.)

PART II. CARE OF THE SICK AND PROPHYLACTIC MEASURES.

The struggle against tuberculosis in Germany naturally began with the attempt to cure the sick, but little by little the fact has become evident that hand in hand with this should go the more important measures for the protection of the well. The motto of the modern campaign has thus become "Heilung der Erkrankten und Schutz den Gesunden."

A. Sanatoria (Heilstätten).

Beginning as early as 1855 with the establishment of Dr. Brehmer's sanatorium in Goerbersdorf, the movement gained but moderate headway until 1896, as shown by the fact that in that year the total number of beds in all the "Heilstätten" was but 750. The formation of the "Deutsches Central-Komite zur Errichtung von Heilstätten für Lungenkranke" marked the beginning of the modern movement for the erection of "Volksheilstätten," or sanatoria for the poor. Two years previously v. Leyden in an important communication, "Ueber die Versorgung der tuberkulösen Kranken seitens der grossen Städte," read before the Eighth International Congress of Hygiene in Budapest, had prepared the way for this awakening. With v. Leyden are associated the names v. Ziemssen, Gerhard, B. Fränkel, v. Leube, Pannwitz and others in this early work. The rapid growth of the sanatoria movement in recent years is strikingly shown by the following figures: in 1896 there were in these institutions a total of 750 beds; in 1900, 3,700; in 1905, more than 8,000. There are at present nearly a hundred sanatoria with approximately 10,000 beds. The sources of the funds for erection and maintenance are various, and include the State Insurance Societies, the Red Cross Society, the cities or communities, corporations, societies and individuals. In all cases, however, the general supervision of erection is in the hands of the "Central-Komite." Acting upon the principle that "the best is the cheapest," these institutions have been built in a most complete manner at great cost. The largest and most elaborately built are the insurance sanatoria.

Disregarding climate and elevation, that location is considered best which is not too far removed from the place where the patient is accustomed to live, is protected from wind by woods or mountains, has a sunny exposure, in an atmosphere free from dust and smoke, and with good water, dry soil and effective drainage. A large tract of land is desirable in order that long walks may be possible without going from the sanatorium grounds. The building is most commonly of such type as to give the maximum of exposure to the sun, *i. e.*, in the form of a blunt angle or with wings and of not more than three stories. The single large building is less expensive to erect and maintain than the one-story pavilion type. All the service rooms, dining-hall, machine shop and laundry are placed at the back. A few are constructed with large wards, but as a rule the sick rooms are small, holding only from one to six beds. Every "Heilstätte" is provided with balconies for the rest cure. Much attention is given to beautifying the immediate surroundings of the institution. The details of the toilet and administrative rooms need not concern us here. Ample provision is made for special examination and treatment rooms (including hydrotherapy)

and, in some instances, for laboratories and gymnasia. A few possess workrooms for the use of those sufficiently benefited to be able to perform a small amount of work. In addition to the balconies, open-air rest-halls (*Liegehallen*) adjoin the main building. These are long, shed-like structures entirely open to the sun in which the patients recline during the day. For the most part, provision is made for not more than one hundred patients, though a few can take from 150 to 200, and one, Berlitz, near Berlin, has a total of over 600 beds. Since the total number of beds in the sanatoria is about 10,000 and the average length of treatment 3 months, the total number of consumptives yearly treated in the German sanatoria is approximately 40,000. Following the principle laid down by Brehmer, as a result of his experiences at Goerbersdorf, only first-stage or slightly advanced cases are admitted. Those considered suitable for admission are (1) those with a catarrhal affection of one apex or affection of one apex without catarrh, (2) the same in one apex and changed breathing in the other, (3) altered breathing sounds in both, (4) infiltration of the upper lobe to one half its extent with or without catarrhal signs (Moeller). The general method of treatment is the so-called "hygienisch-diatetisch-hydriatische" treatment. The details of this need not be given here, as the general plan differs only in individual respects and in the wider use of physical therapeutics from that generally adopted in this country. Tuberculin is used very generally in Germany for all first- and second-stage cases who do not promptly yield to the influence of the hygienic-diatetic treatment. Definite comparative statistics prove the advantage of its use in such cases.[3]

Notwithstanding the relative uniformity of methods used in the German sanatoria, a general summary of the results obtained is a most difficult task, especially with reference to the duration of apparent cures. In the past ten years, however, much has been accomplished by the Invalid Insurance and the "Central-Komite" in the establishment of special statistical investigations with regard to this point. The success of treatment must always depend largely upon the duration of the stay in the sanatorium, and in most instances the three months' limit (the rule in the "Landesversicherungsanstalten") is not sufficient for real healing. Many other factors also affect the results, but chiefly the care in selection of cases for admission. The following table (Table II), compiled from the statistics of the Imperial Board of Health and the State Insurance by Englemann and Hamel and based upon 8,883 cases, probably gives a reasonably accurate idea of the results of sanatorium treatment. A second table (Table III), composed of statistics from eight of the best German sanatoria of various types (Grabowsee, Planegg, Ruppertshain, Weicker's Krankenheim, Friedricksheim, Albertsberg, Belzig and Sülzhayn), give still more accurately the results obtained.

Favorable results, both from the point of view of the conditions in the lungs and the influence on the capability for work, are obtained in a constantly diminishing percentage of cases with the advance of the disease and speak most definitely for the treatment in the sanatoria at the earliest possible period. Continued investigations as to the permanency of the so-called cures and duration of the improvement fail to justify the expectations at first entertained for the successful results of sanatorium treatment. The term "healed" must be used much more reservedly. Only the earliest stages can with certainty be cured. Yet the results obtained by this means are good and the sanatoria must remain the most valuable means at our command for handling the early cases. As above stated, from the beginning of the modern crusade against tuberculosis in Germany the problem has been approached from an economic as well as an humanitarian point of view. The fundamental question has been, does it pay to spend the relatively large amount necessary to restore the sick laborer to a condition in which he is able to work? The Invalid Insurance has investigated the economic side most deeply, and the conclusions are emphatically that from a business standpoint the cheapest method of caring for the sick insured is to give him the best possible treatment. But the importance of the sanatoria in this fight against tuberculosis must not be judged solely or even largely from the results obtained in the cases treated. The patient during his treatment in the "Heilstätte" is receiving instructions in the proper methods of living, and must to a greater or lesser degree carry these ideas to his home and the community after discharge. These institutions, furthermore, contribute largely to the relief of distress in the family. Approximately 100,000 have been treated during the last decade, and 30 to 40,000 enter yearly. The benefits to the community at large cannot be overestimated.

TABLE II.

Results.	1896–98.	1899–1900.
Healed or improved	84.6%	87.7%
Unimproved	9.0%	8.8%
Discharged worse	3.7%	3.1%
Died	2.6%	0.5%
Results at discharge of same cases with reference to ability to work, exclusive of fatal cases.		
Fully capable of resuming former work	65.7%	67.3%
Fully capable of performing other work	6.5%	7.1%
Partially capable of work	12.8%	14.6%
Incapable of work	15.1%	11.0%

Table showing the results of sanatorium treatment in 8,883 cases. (Gebhard.)

B. Convalescent Camps (Erholungsstätten).

The sanatoria will always remain one of the most important factors in the anti-tuberculosis campaign and the sanatorium treatment the most effective method of curing the early stages, but such provision in consequence of the great expense and the large number of early stage cases must ever be inadequate. Provisions are especially needed for those waiting to enter the sanatoria. These facts long ago made evident the

[3] Turban, Kremser, Petruschky, Krause, Götsch, Dönitz, Möller and others.

necessity of some provision supplementary to the sanatoria. Drs. Weber and Lennhoff organized a most thorough investigation into the conditions of the workingmen, especially the sick, in various places in the empire. Their report, containing an exhaustive study of the conditions found, was made to the Berlin Tuberculosis Congress of 1899, together with recommendation for the establishment of *convalescent camps* for day residence. The advantages as outlined by them are: (1) that they afford excellent opportunities for the observation of cases, (2) that they are suitable institutions for the care of those not admitted to the sanatoria, (3) that they serve as transfer stations and (4) that they are places of refuge and for the study of doubtful cases. In the following year (1900) the first was established near Berlin by the "Volkheilstätten-verein vom Roten Kreuz." Almost immediately many such camps sprung up through the aid of the Red Cross, the Invalid Insurance, Central Committee, various local societies, business firms and the large cities. At the present time more than fifty are to be found scattered all over the kingdom, especially in the immediate vicinity of the large communities. The type of construction and method of maintenance are essentially uniform in all. At first designed only for occupation during the day, several later made provisions whereby the patients were enabled to spend the nights also, during the winter as well as the summer. The location is most commonly in the forest (*Walderholungstätten*), accessible to some convenient means of transportation. The construction is the simplest and consists in the day camps of a central administration building, a large shelter-hall and wash-room. The cost of construction varies from 5,000 to 10,000 marks. Here the patients lead an out-of-door life, resting or exercising as their condition indicates, and are furnished with the best of simple nutritious food at the trifling charge of 20 to 50 pfennigs daily, or free in the case of the very poor. Special rates or free tickets for transportation are usually furnished by the railroads. The camp is in charge of a nurse under the direction of a visiting physician. These cheap, accessible and simple institutions have given most satisfactory results and care for many thousands yearly.

The workingmen's gardens (*Arbeitergärtens*), managed for the past six years by the Red Cross Society in the suburbs of Berlin and Charlottenburg, have aided along lines similar to the convalescent camps just described. The purpose of these gardens is to provide a suitable place where the families from the poor districts may build up their health and strength by means of a pleasant life in the open air. There are in all 12 garden fields with a total of about 700 individual gardens ranging from 250 to 300 square meters each. The allotment and management of the gardens is in the hands of overseers appointed from among the workingmen. Each garden-field is provided with a common recreation ground fitted with gymnastic apparatus and arrangements for out-of-door games. Milk and non-alcoholic drinks are sold at cost. Though not established solely for the families of the tuberculous workingmen, they are almost wholly of this class. The Red Cross is thoroughly convinced of the great practical benefits of these gardens.

C. Farm Colonies (*Ländliche Kolonien*).

A fact familiar to all workers in this field is that many of the workmen who have been discharged from the "Heilstätten" as apparently cured, returning to their former way of unhygienic living and heavy or unhealthy work, sooner or later suffer a relapse. The establishment of these farm colonies is due to the activity of Dr. Liebrecht, of Hannover, and Professor Pannwitz of Berlin. Their conclusions regarding these colonies are briefly as follows:

(1) They form an important link of the china in the crusade.

(2) In these colonies the patient should regain normal working power through gradually increasing labor and should then be transferred to a less dangerous occupation than that previously engaged in.

(3) The patient must perform work according to his health and strength, with corresponding salary. His family, if necessary, must also be supported.

(4) The farming should be so arranged that the patient does only light work in the gardens, orchard and forest, while the heavy work is done by paid servants.

(5) The colony should be in a locality where such work is needed in order that the workman when fully restored to health may be encouraged to become a settler and find a place for his family. The amount of work required is determined by the physician and falls in one of three grades: (1) four hours, (2) six hours, and (3) eight hours of

Table III.

Total number of cases treated in the eight sanatoria.	Completely healed. %	Relatively healed. %	Improved, in a more favorable stage. %	Improved, in the same stage. %	Unchanged. %	Worse, in same stage. %	Worse, in a less favorable stage. %	Dead. %
Total, 11,935	3.4	11.9	41.0	28.7	9.8	2.5	2.4	0.4
(*a*) Men, 9,975	3.0	10.1	41.8	30.3	9.5	2.4	2.6	0.4
(*b*) Women, 1,960 .	4.7	17.0	38.3	24.4	10.7	2.8	2.0	0.3

Table giving the results obtained in 11,935 cases treated in eight of the German sanatoria, according to the conditions in the lungs at the time of discharge. (Gebhard.)

work daily. The payment for such work is usually 10 pfennigs per hour. As a rule the workman remains not more than two months. The results so far as those treated are concerned have been fully satisfactory, 78% being completely restored to working power. A practical difficulty has been found in getting those discharged from the sanatoria to undergo a " nachkur " in the farm colony, and in consequence but two have thus far been established, " Ländliche Kolonien Stübeckshorn, bei Soltau " and " Ländliche Kolonien Sannum, bei Oldenburg," both insurance institutions.

D. Care of the Advanced Cases and General Prophylactic Measures.

Experience has shown the futility of the attempt to stamp out tuberculosis by treating the sick alone, and more and more the importance of prophylactic methods for the protection of the well has come to the front. The sanatoria, in which all interest was first centered, are for but one class of cases, and that a relatively small one. The advanced and hopeless stages form the largest class, probably 80% of all cases in Germany or approximately 800,000. Tuberculosis is a house disease, and prophylaxis in the home stands as the keynote in the modern crusade. Our chief duty is to limit the spread of tuberculosis. In this new field of activity several types of institutions have figured prominently.

(1) *Polyclinic.*— The establishment of the polyclinic was due to the efforts of Prof. B. Fraenkel, who founded the " Königliche Polyklinik für Lungenleidende " in Berlin in 1899. The earliest possible diagnosis is made by the use of the most approved laboratory and clinical methods. When suitable the cases are at once sent to some sanatorium or other special institution for treatment, but if the patient is not suitable or for any reason is unable to go he is treated in the polyclinic. Those previously discharged from the sanatoria are likewise watched and supervised. Strict attention is also paid to prophylaxis and to aid to the family when in need. The limited funds will not permit of that strict supervision of the patient in his home which is possible in the case of the dispensaries, to be described later. A complete organization prevails and the standard of work is the highest. During the year 1903, 9,000 patients received treatment and in all, since its beginning, 29,000. As mentioned above, many of the other cities have similar polyclinics either associated with the general hospitals or university clinics.

(2) *The inquiry bureaus and dispensaries* (*Auskunft und Fürsorgestellen*) were first organized in Berlin in 1904, but already nearly fifty have sprung into existence and many more are being founded. While the highest aim of the polyclinic is early diagnosis, the purpose of the inquiry bureau and dispensary is to reach all classes of cases and especially to care for the advanced patient in his home. The nature of the clinic is quite similar in both. The "Auskunft and Fürsorgestellen," because of their wide scope of activity and direct method of attack, will in the future doubtless occupy a very prominent place in the crusade. Financial support is drawn from (1) the Workingmen's Insurance Associations, (2) the " Krankenkassen," (3) the poor funds and (4) private benefits. The broad scope of the activity of these establishments necessitates the closest association with the sanatoria, antituberculosis societies, charity organizations, " Krankenkassen," " Central-Komite," convalescent homes, farm colonies, seaside hospitals, -- in act, every factor in the great struggle. As in the polyclinic, every effort is made to reach an early diagnosis. First- and second-stage cases, *i. e.*, those offering hope of cure or permanent improvement, are transferred to special institutions, being cared for by the dispensary only while waiting for a place. The far-advanced cases must for the most part be treated in their homes. The dispensary aims to care for these dangerous foci that they may be rendered innocuous to their surroundings; in other words, to " eradicate the existing epidemic centers and to prevent the formation of new ones " by the " permanent sanitation of the tuberculosis family in its own home." Dr. Kayserling has called attention to the inadequacy of ordinary statistics of the cause of death in determining the number of cases of tuberculosis in a given community, and has proved by actual experience in the dispensaries in Berlin that the only trustworthy method is by medical examination and inspection. The medical inspection and examination of the families of the consumptives has brought to light the astonishing fact of the frequency of tuberculosis in children, involving the bronchial glands or lungs, but without symptoms, and Dr. Kayserling considers these children of tuberculous parents to be the chief bearers of the bacilli. Another striking condition revealed by this systematic examination is the fact that in the majority of instances in the families among the poor where one member has open tuberculosis, one or more other members are found infected, though usually unrecognized.

The colossal work undertaken by the inquiry bureau and dispensary is worthy of close study. The city of Berlin, for example, is divided into districts, each of which is assigned to one of the five dispensaries. Each dispensary is under the charge of a physician and his assistants who act under the direction of the general secretary (Dr. Kayserling). When a new patient enters the dispensary a most exhaustive history is taken and thorough examination made and recorded. On the following day his home is visited by the district nurse and an exhaustive report of the condition found is made to the physician in charge. If suitable, the case is sent to one of the many institutions described above. The work in caring for the sick in the homes and protecting the well is done by especially trained nurses under the close supervision of the physician in charge of the dispensary. Every detail is personally supervised and the family instructed by them. Aid is furnished in many ways, even to the supplying of food, clothing, rent, beds, etc. Besides the routine of treatment and prophylaxis every member of the family is sent to the dispensary for examination,

where the most exact methods are employed to detect any tuberculous process. Following the initial examination the patient is re-examined every six weeks.

It is impossible to measure the results attained by these dispensaries, much less express them satisfactorily. In the Berlin institutions alone there were examined during the first eighteen months 15,000 persons, and in all more than 50,000 examinations were made. From September, 1904, to April, 1906, 7,500 families were examined, and during the same period 1,077 persons were transferred to homes and sanatoria and 1,014 to convalescent institutions. The eleven district nurses employed in the work made 18,540 house visits to April, 1906. In conclusion, it may be said that the Inquiry Bureau and Dispensary has demonstrated its great usefulness and promises to become the most effective weapon in the battle against tuberculosis.

(3) *Special institutions for the far-advanced cases (Invalidenheime, Heimstätten).* — At present one of the most crying need in Germany is for hospitals or asylums for the advanced cases where strict isolation can be carried out. Professor v. Leube has recently advocated the forcible removal, if necessary, of all such from their homes to institutions especially provided for them. Three types of institutions have been suggested: first, especial hospitals exclusively for this type; second, special wards or pavilions (strictly isolated) as part of the general hospitals; and third, where these are not possible, the setting aside of special rooms. Several hospitals have already been erected and the hospitals of the cities are rapidly following out the second and third suggestions. The funds are raised chiefly by the Insurance Associations, the Red Cross and the various societies.

E. Dwelling-house Reform.

In the improvement of the homes of the poor lies one of the most important prophylactic measures. Tuberculosis is essentially not only a disease of the masses but a house disease as well. Investigation has repeatedly shown that the mortality from tuberculosis is greatest in the poorest and most densely populated districts. The explanation is evident, for here along with a lessening of resistance on the part of the well as a result of the unhygienic conditions, goes an increased possibility of infection due to the overcrowding which brings the sick and well in closer contact. Furthermore, the dampness, filth and lack of sunshine favor the maintenance of foci of infection. Many interests, as the state, insurance, cities, employers and societies, have in the last semi-decade combined to relieve these unfortunate conditions. Since 1899 the Workingmen's Insurance Institutions have loaned more than 30,000,000 marks for the building of model homes. The state has also made large loans for the same purpose. Many communities and the state, in some cases, have erected houses for their officials. The power given the authorities in some cities to condemn unhealthy dwellings and to erect in their place model houses has aided much.

F. The Crusade against Tuberculosis in Children.

Until within a few years almost no attention was given to this important part of the problem, but at the present time the movement has become a significant one. In spite of the early activity in the erection of sanatoria for consumptives, no provision was made for children until 1903, when the "Kinderheilstätte," in Belzig, with 30 beds, was opened. Up to 1905 only two others had been founded. The beginning of the movement really dates from the Berlin Tuberculosis Congress of 1899, where this subject was discussed.

Greater activity has been shown in the establishment of *convalescent camps* and *forest schools* (*Waldschule*) for children of both sexes in the vicinity of the large cities. The former are essentially the same as those for adults described above, with few exceptions, being only for day patients during the summer months. The *régime* of treatment consists in a maximum of fresh air, nourishing food, regulation of rest and exercise and training in general hygiene. In 1904 the "Vaterlandische Frauenverein," in Charlottenburg, established the first forest school near the city, with a capacity of 120 children of both sexes. The routine is the same as in the convalescent camps, except that provision is made for regular study from two and a half to three hours daily in the open air. The excellent results soon led to the opening of others in different parts of the kingdom.

Seaside hospitals. — These came into existence through the activity of the "Verein für Kinderheitstätten an den Deutschen Seeküsten," founded by Professor Beneke, of Marburg, in 1880. This society now controls four seaside hospitals, with a total of over 500 beds. Funds are raised largely through branch associations in various cities and the women's socieites. More brilliant results have been obtained in these seaside hospitals than in the other sanatoria, and it seems to have been conclusively shown that tuberculous children do best in those institutions on the sea coast. The stay in the German seaside hospitals for children usually lasts for five or six weeks. Exact statistics of the results of the treatment cannot be obtained, for the reason that the results must be tested for a long period of years to be of value, but reports of various institutions during the last ten years indicate that from 50% to 60% are cured. A longer stay would doubtless aid materially in increasing these percentages.

About one third of the children sent to the different *baths* are tuberculous, hence these merit passing mention, as they yearly treat many thousand children.

The most direct prophylactic means for children exists in the *vacation settlements* (*Ferien-Kolonien*). Children from ten to fourteen years are admitted to the holiday camps, where they are kept under close supervision by a teacher or nurse during their stay. By means of good food, rest and play in the open air, the general health is raised. One hundred and ninety active societies in 119 cities furnished during the year 1902 1,118,000 marks

and sent 30,000 children to these vacation colonies.

G. Tuberculosis in the Army.

The careful medical examination of recruits and the close medical inspection of soldiers on service has naturally resulted in keeping the number of cases in the German army comparatively small. The cases are found chiefly in the large garrisons and among the corps from those parts of the kingdom where tuberculosis is common. Immediately following the discovery of the tubercle bacillus by Koch in 1881, strict measures were adopted in the army to further restrict the entrance and spread of tuberculosis. The present measures may be grouped under four headings, as follows: (1) the thorough medical examination of all recruits with special reference to tuberculosis; (2) the closest inspection during service; (3) regulation of the daily life according to those rules which increase the general health and strength; (4) immediate isolation and treatment of the consumptive in the army hospital as well as the most thorough disinfection of his surroundings. All doubtful cases are carefully observed either in the hospitals or in a convalescent home, of which there are some 113 in the kingdom with over 700 beds. Early cases are transferred to some tuberculosis sanatorium or to one of the government sanatoria, as at Münich, Münden or Saarbrücken. At Arco, in the southern Tyrol, is a special convalescent home, "Villa Hildebrand," founded in 1901 by the Kaiser for German army and sanitary officers suffering from pulmonary tuberculosis.

H. Tuberculosis in the Navy.

The number of cases of tuberculosis in the navy is slightly greater than in the army, but varies much with the type of service, being more frequent in the land than in the sea service and in the home than foreign service. The same care is exercised in the physical examination of recruits as in the army, and similar precautions taken with reference to the general health of all in the service and to prophylaxis. The strictest rules of general hygiene are enforced. When a case of pulmonary tuberculosis is discovered the patient is immediately isolated and thorough disinfection carried out. When possible, he is sent to one of the marine hospitals or to a sanatorium. Officers are admitted to "Villa Hildebrand" from the navy as well as the army.

NOTE. — In the preparation of this article I have drawn freely from the following sources: Kurze Übersicht über die Tätigkeit des Central-Komites in den Jahren 1896 bis 1905; Der Stand der Tuberculose-Bekämpfung in Deutschland, B. Fränkel, 1905; Das Deutsche Rothe Kreuz und die Tuberkulose, 1905; Entstehung und Bekämpfung der Lungen-tuberkulose, Jacob u. Pannwitz, 1901; Die soziale Bekämpfung, der Tuberkulose als Volkskrankheit in Europa und Amerika, Blumenthal, 1905; and many reports of individual institutions besides personal notes.

IT is said that a compromise has been effected by which the city of Philadelphia will receive $1,000,000 from the estate of Dr. Thomas W. Evans for the establishment of a dental institute and museum. — *Science.*

STUDIES IN PSYCHOPATHOLOGY.

BY BORIS SIDIS, PH.D., BROOKLINE, MASS.,

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(Continued from No. 13, p. 398.)

X. CASE OF RECURRENT EMOTIONAL STATES.

THE following case may be of interest from the fact of the insistence of the recurrent emotion which it presents:

Mrs. J. A., age thirty-eight. Married. Parents were of nervous temperament. Sister is well. Patient is of Irish descent, born in United States. She had a common school education and is not very intelligent.

A physical examination shows the patient to be poorly nourished; she experiences peculiar noises in the right ear, and when she falls asleep she hears occasionally voices. As far as she can remember this persisted since her childhood. Pupils react well to light and accommodation; patellar reflexes are greatly exaggerated. She sees spots before her eyes and has vivid visual dreams. Menstruation normal, regular and not painful. Sensibility to touch, pressure, pain and temperature is in good condition. She has no headaches, no tremors, no motor disturbances.

Patient complains of a painful and very distressing sexual affection in the presence of men. The excitement is sometimes very intense and she is then in agony over it. She is ashamed of it and is disgusted with herself, but the feeling is sometimes sweeping over her with such force that she has great difficulty in suppressing it. The "evil and disgusting" thoughts and feelings torture her and she thinks that death is preferable to such a "miserable" life. She would commit suicide if not for religious fears. The torture of the sexual possession is so intense that she has to shun the presence of men. Curiously enough, it is always the presence of strange men that affects her; the presence of her husband has on her no influence whatever. Even in the church this sacrilegious feeling comes over her and that often in the very middle of the prayer, especially when she happens, to be surrounded by men she does not know. She thinks she defiles the church by her impure thoughts and feelings. She cannot be in the company of men on account of those "horrible" feelings over which she has so little control. She is all the more pained by the perversity of her feelings, as she gets affected in the presence of persons whom she would expect least to arouse in her such "abominable" feelings: a priest will excite them and even a negro. Moreover, she somehow has the feeling that in her presence the men who see her seem to experience the same "baneful" excitement; it is a kind of sexual "telepathy." Occasionally she is seized with unaccountable feeling of fear and is not conscious of what that fear is in particular; she is just afraid and does not know of what, — it seems as if she feels the presence of invisible spirits.

By the method of hypnoidization the patient was put in the hypnoidal state. It took some time to quiet her and compose her, as she felt intense anxiety. At last she became soothed and sank into a deep hypnoidal state; but, as it is characteristic of this state, it is varying in its depth from moment to moment and is very unstable. The instability was specially characteristic of this patient, on account of the nature of the case. Still, even under such unfavorable conditions, the hypnoidal state yielded some definite

and interesting results, revealing some subconscious systems of experiences which gave an insight into the nature of the symptoms.

The patient has been a very sensitive and nervous child. She liked to listen with trepidation and shivers to all kinds of stories about spirits, hobgoblins and ghosts, and used to be in mortal fear of goblins. Darkness threw her into great fear, because she suspected the presence of all kinds of mysterious beings and spirits, especially evil ones. She used to hear very strange noises in her ears and was afraid of them and ascribed them to the action of evil agencies. All the dark nooks and corners, cellar and loft and every lonely room and place were peopled by her with ghostly shapes and ghastly figures, — with demons, devils, sprites and gnomes. In her sleep she did not fare any better, since she suffered from frightful dreams and nightmares. The patient thus passed her childhood in continuous fear of unknown and mysterious powers surrounding her on all sides. The child lived in constant terror of things she could not give an account of; she was afraid and did not know of what. It was really a cultivated form of panophobia developed in a timid and nervous child. Later on the fears apparently lapsed, but really did not disappear, — the fears became subconscious. It was those dissociated subconscious fears of something indefinite and intangible of early childhood that were manifested in fully developed womanhood as an inexpressible, unaccountable fear of some impending evil; in short, as panophobia.

But how about the sexual affection? In one of the hypnoidal states I at last discovered the subconscious source of the trouble. As a young girl the patient was very emotional, highly excitable, an ardent temperament, with strong passions which she had some difficulty to control. The sexual instinct was awakened rather early and the patient had some difficulty to subdue it. She felt, however, quite safe, as the instinct was kept well under control. When about the age of eighteen she had to return home from a visit to a girl friend of hers. It was late at night; the car she boarded was rather deserted, with only one passenger, a young man, sitting opposite her. Gradually an intense sexual feeling stole over her and seized on her; she felt like one stunned. It seemed to her as if some frenzy got hold of her. The barriers of the pent-up passion evidently seemed to give way. She felt mortified and humiliated at her weakness. At the same time she knew that the man was also sexually affected. She was in agony, and when she left the car the patient was all broken up and prostrated for several days. After a few days she recovered and then the whole incident faded from her memory. The affection, however, really did not disappear, — it only lapsed from personal consciousness; it became dissociated and subconscious, to come once more to the surface of consciousness on subsequent favorable occasions. Thus the hypnoidal states have disclosed the presence of subconscious states, the working of dissociated moments-consciousness in a disaggregated subconsciousness.

XI. CASE OF INSISTENT STATES WITH GYNOPHOBIA.

Mrs. C. C., thirty-five years old; married three years. Father is of neurotic, passionate temperament; mother is very nervous, seems to suffer from some kind of epileptiform attacks and periodically from severe hemicrania. Brother and sister are well, though also very nervous and excitable.

Patient is quite intelligent, but very emotional, — cries at the least provocation; her attention is easily distracted; mental processes are normal. Desultory memory for numbers and syllables is poor, but logical memory for events past and present is well preserved. There are no perceptual disturbances, — no illusions, no hallucinations. Sleep is light and is disturbed by dreams.

Physical examination is negative; except for the fact of marked ill-nutrition and flabbiness of muscles, nothing special could be observed. Patellar reflex is exaggerated. Pupillary reaction and accommodation to light and distance are normal. Field of vision is normal. No motor disturbances. She complains of creeping sensations in the extremities, in the hands and legs, also of tingling sensations and numbness in the body and of pains in the back. An examination, however, shows that the patient's sensitivity to all forms of stimulations is normal. Still at times she suffers much from pains in the back, from paresthesia, tingling sensations and numbness of the extremities and from paresis of the whole body. Motor imitation is very marked, so that the patient frequently copies and imitates motor habits that specially impress her. During the course of her life patient has taken up all kinds of motor habits and twitchings, although she succeeds in arresting them. The motor automatisms are not of an insistent character.

What the patient, however, specially complains of is insistent ideas and feelings which torture her, and from which she is unable to free herself. Thus, she has an extreme abhorrence of women. Woman to the patient is impurity, filth; woman to her is the very incarnation of degradation and vice. She would not pass a woman if she could help it. Patient tells me she would not have come up to my office had a woman been standing on the steps. She cannot pass a woman without a sense of nauseating disgust. The house-wash must not be given to a laundry where women work.

The patient's husband corroborated the general symptoms and gave additional data. They had to break up house and remove to another one because carriages opposite their window happened to be hitched in knots and in angles which the patient could not tolerate. Pencils, sticks, books and other objects must be put parallel to the wall and not so as to form an angle or be brought in relation with any of the angles of the room. In kissing her, the husband must be careful that the kisses should not be in a vertical position, nor form any angles, but all must be arranged in rows, parallel to the wall. When dining in a restaurant, should a gentleman and a lady happen to come near them, the table must be immediately left in the very middle of the meal. Patient has certain formulæ and phrases which she seems to regard with superstitious awe, although she is conscious of their absurdity. She insists that the husband should repeat verbatim the phrases, and if he happens to substitute another word, or phrases the terms differently, she is much disturbed; he has to help himself out with a dictionary, as she is not supposed to tell him the words. When she attempts to counteract her insistent ideas and impulses, she has crises of crying and of intense depression and suffers agony. Patient feels very unhappy and is distressed over the misery she is in, and of the pain she causes her husband. She bewails her

lot, regards herself as insane, but the ideas and impulses are irresistible and uncontrollable. Mr. C. tells me that his wife experiences horror and disgust at the touch, at the mere sight of a woman. He must be on the lookout not to be in one line with a woman, even if the woman be two or three blocks away. Nothing must be picked up on the street, not even the most valuable object, perchance it might have been dropped by a woman. A woman once happened to visit his wife, who could not help herself and had to admit her female guest. The visitor was sent off by some excuse or other. Unfortunately, the woman before leaving stopped on the threshold of the house for a few moments. The house was at once washed, cleaned, scrubbed and purified as after a pest. The husband was not admitted to enter that door for a week, until the threshold was ripped up, another new one made, and the position of the door changed. Patient has also fears, unaccountable fears; she does not know what it is she is afraid of; she is only conscious that, when she remains alone, especially in the evening, a fear suddenly seizes her.

The hypnoidal state brought out the fact that the patient, who was educated in a convent, was easily frightened and was specially afraid of the dead and of the devil. While in convent she used to have frightful dreams in which the devil played the chief part. Thus once she dreamed that the devil pinched her ear; she cried out and woke up in great fear. The nun upbraided her, because the devil could not possibly visit such a holy institution as a convent. Once the devil threw her out of bed and threw the mattress after her. The people in the convent became very much frightened and the girls screamed and prayed. The priest was called for and he asked the patient whether she had been praying for the lost souls in purgatory. On being answered in the affirmative the priest advised her not to pray any longer, as the souls from purgatory troubled her. She stopped praying for the lost souls and the trouble completely disappeared. It is the fear of devils and of lost souls that keeps on persisting in the subconscious life of our patient and is now and then giving rise to indefinite fears of the unknown, to panophobia. The foundation of this panophobia was laid in the patient's tender childhood, and, although she no longer believed in diabolical agencies, in fact even ridiculed them, still the fear did not fully lapse, — it became dissociated and subconscious.

The patient's motor automatisms and imitativeness can be readily traced to her childhood. As a young child patient was very impressible, highly suggestible, more so than any other child of her age, — she suffered then from habit-tics and from choreic-like movements and twitchings. The suggestibility of the patient's waking state is now greatly reduced, but the subconscious suggestibility is possibly as strong as ever. She can, however, easily free herself from such subconscious motor suggestions and imitations, so that they do not trouble her much. They are but transient and soon tend to disappear.

Some twelve years ago the patient had a bad all and hurt her spine. It is to that fall that the objective paresthesia in the extremities, the ingling sensations, numbness, paresis and pains in the back can be traced, — the patient passes at each attack through the original experiences of the accident of the fall.

When about the age of eighteen the patient suffered a great shock, — one of her near relatives attempted to assault her at night. This accident threw her into a series of attacks which she characterizes as "hysterical attacks." She really never got fully over it, and the incident, though apparently but faintly present in her conscious memory, has remained active in her subconscious life.

The patient's gynophobia or hatred of women, may be traced to her training received in the convent. While there she was impressed with the belief that woman is a vessel of vice and impurity. This seemed to have been imbued on her by one of the nuns who was very holy and practised self-mortification. With the onset of her periods, and with the observation of the same in the other girls, this doctrine of female impurity was all the stronger impressed on her sensitive mind. This, however, lapsed from her conscious memory and did not come to the foreground of consciousness until later in life when she was fatigued and exhausted by the strain of office work, toiling many days at a stretch. Still this dissociated, subconsciously buried prejudice of youth might have never come to the surface had not another factor favored its forthcoming and resurrected an experience that had apparently long gone from her active life. Three years ago the patient married a man somewhat younger than herself. Being of a highly sensitive mind and of a suspicious disposition, she developed an intense feeling of jealousy in regard to her husband. It was under these conditions of jealousy that the long-buried and dissociated belief in the impurity of woman came to life again. Curiously enough, instead of applying it to herself, the feeling of gynophobia was applied by her to others. This is due to the emotion of jealousy which called forth that subconscious atavistic belief of the patient's religious youth. The magic formulæ and phrases belong to the same subconscious stratum. The avoidance of formation of angles and the arrangement of kisses had a purely sexual significance.

(To be continued.)

Massachusetts General Hospital.

CLINICAL MEETING OF THE STAFF, MARCH 8, 1907.

UNUSUAL PUPILLARY PHENOMENA IN HYSTERIA.

BY JAMES J. PUTNAM, M.D.

A RARE form of hysteria was demonstrated, of which the main features were dilatation, with complete immobility of the pupil of one eye, associated with spasm of the ciliary muscle of the other eye, the pupil of which was rather small habitually, but responded to light and with convergence. The fundus was normal on both sides, but the vision of the eye with the

spastic ciliary muscle was considerably reduced, both as regards acuity and size of field, while the vision of the eye with the immobile pupil was normal both for distant and for near objects.

The patient was a young girl of nineteen, an operative in a mill. She had been subject, ever since infancy, to occasional attacks which seemed to be of an epileptic character for the most part, and it was on the day following one of these attacks, six months ago, that one of her companions noticed the change in the size of the pupil for the first time.

The patient then applied for treatment at the Eye and Ear Infirmary, and was kindly referred to the Massachusetts General Hospital by Dr. Edmund W. Clap, under whose care she had come.

Further examination then showed that the patient was anesthetic over the entire half of the body on the side of the spastic ciliary muscle and contracted field of vision, and this anesthesia included the eyeball and mucous membrane of the nose, as well as the trunk and limbs on the same side. Other marks of hysteria were also present. Suggestion in mild hypnosis had failed to remove the anesthesia or to modify the eye symptoms, but the vision has improved through training.

The case was considered as important not only because of a rare sort and one with regard to the genuinely hysterical character of which much doubt had been expressed, but also because, if genuine, it indicated how deeply the hysterical tendency may strike among the reflexes ordinarily considered as beyond the reach of will.

A more extended report will be given in another issue of this Journal.

HYSTERICAL TRUNK DEFORMITY.

BY MAX BOHM, M.D.

The case which I am presenting to you to-night, on request of Dr. J. J. Putnam, represents a somewhat rare condition, namely, an hysterical trunk deformity.

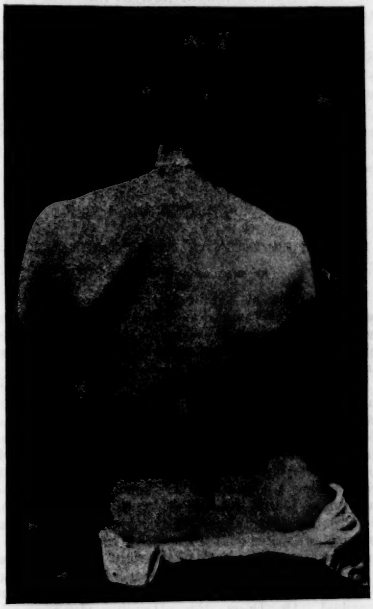
There is nothing remarkable in the patient's previous history, particularly no heredity as to nervous diseases in her family.

She was perfectly well up to 1905. In October, 1905, she noticed that her right hip was growing large. Two weeks later she began to have sharp shooting pain in her right hip, running down her leg; she began to limp and had to go to bed. Then she went to two hospitals and was treated at both places for tuberculous hip disease. Plaster spicas were applied. After the plasters were removed, she had to walk stiff-legged. In June, 1906, her hip was cured; but now her back became crooked and painful. She had to stay all summer at home, most of the time in bed. She says the end of her spine was so painful that she could not lie on her back nor sit down. She went to a hospital, where a plaster jacket was applied on her back, which she wore for six weeks. After this was removed, her back was worse, she says, and massage and electricity were given for two months. In February, 1907, she entered the out-patient department of this hospital.

The photograph shows the conditions which were present at that time. The spine offered a marked distortion and the question came up to determine the nature of the deformity. For many reasons we came to the conviction that it did not represent an ordinary lateral curvature. For in the first place there was no rotation present, which accompanies the lateral deviation of the ordinary spinal curvature in such a typical way.

Furthermore it was remarkable to see how the rather severe deformity disappeared under extension or even in recumbency, which never can happen in a case of spinal curvature with structural change in the vertebræ.

Thus we had to consider the type of deformity, offered by this girl, as different from the



ordinary lateral curvature and to search for other etiological factors than those which we associate with the latter.

There are a few cases described of hysterical scoliosis in the literature, which offer very similar conditions to our case. Most of the authors mention the presence of general hysterical stigmata, furthermore, of contraction or relaxation of the back muscles as points which the diagnosis must be based upon. Since these conditions are present in our case, hysteria offers the best explanation for the deformity. The assumed hip disease also seems to be of hysterical nature, since no trace of it whatever can be found.

The diagnosis is of some importance, for the prognosis and treatment of an hysterical curvature is naturally entirely different from that of

an ordinary lateral curvature. For the former can be absolutely cured, the latter only partly improved.

There are several means for *treatment* of this hysterical deformity. More severe forms of treatment are, stretching under ether, application of plaster, etc., but the simplest form of treatment is psychotherapy. And this was applied in our case. What needs most consideration is the fact that these cases have lost the consciousness of the normal trunk attitude. Asked to stand straight they will not do so, even if they are physically able to. That is where the treatment has to start; the patients have to be taught with the help of a mirror how to take the proper attitude until they learn it.

Besides this special treatment general hysterical treatment naturally is indicated, which must involve some unpleasantness. This was done in our case by head suspension.

The case is still under treatment and so far markedly improved. But the time, which she is under observation is too short to allow us to speak of a permanent correction.

FEIGNED ERUPTION IN AN HYSTERICAL MAN.

BY CHARLES J. WHITE, M.D.

THE subject of this remarkable condition is a coachman, forty years of age, whose previous personal and family history is so good that they have no direct bearing upon the present state in which we now find him.

In December, 1905, he burned the right middle finger while shaking down his furnace. The wound became septic, involving the bone, and in consequence the distal and middle phalanges were amputated. The stump healed in the course of six or seven weeks but almost immediately became sore again, thus necessitating a second amputation at the metacarpophalangeal joint. In six weeks this second wound healed when there appeared at its site a thick crust, the size of a five-cent piece. At the same time a major portion of the back of the right hand and a half of the extensor surface of the forearm became involved by diffuse crusting lesions similar to the one just described. Dr. Drew, the attending physician, describes the condition as septic, and the resulting scar, though to us not suggestive of a typical previous septic state, reveals the depth and destructive action of the process. Most of the summer of 1906 was required to heal this serious wound.

In November, 1906, a Boston surgeon incised the arm in the anterior axillary line and stretched the nerves hoping to relieve the deplorable condition of the patient. The resulting scar can be seen at the junction of the arm and the chest.

After this operation there was quiet until about five weeks ago when the man noticed itching in the arm and then appeared small red spots on the skin which, before attaining the size of a large bean, became covered with brown crusts and then slowly developed in size until they reached the present area, some two inches in long diameter.

To-day the arm presents ten lesions, round or oval in shape and covered with thick, brownish crusts with depressed centers and concentric ridges like the lamellations of an oyster shell. Around these crusts appears a fine halo of pinkish skin, while from the lower edges of several of the larger lesions can be seen one or two linear streaks of slightly ulcerated, greenish or pinkish-red skin terminating in drop-like enlargements. These linear ulcerations are very important from a diagnostic point of view, and a careful observer will be impressed by the fact, I think, that they correspond well with the course of a caustic liquid influenced by gravity. On the dorsum of the right foot there are, in addition, several small lesions covered with blackish crusts. The crust at the site of the second phalangeal operation is blacker than the others and presents a deep crateriform surface, while from underneath pus can be expressed. This lesion, the man states, has persisted from the time of the second excision.

Physically the patient is well except for certain nervous symptoms which are highly interesting in their bearing on the case. The dermatological department wishes to acknowledge its indebtedness to the neurological staff for the demonstration of these facts. Over the whole right half of the body the man is anesthetic, even the bulbar conjunctiva and nostril being insensitive to severe irritation. Motion of the right arm is much impaired while the right patellar reflex is decidedly exaggerated.

DEMONSTRATION AND CLASSIFICATION OF BENIGN BREAST TUMORS.

BY CHANNING C. SIMMONS, M.D.

THE demonstration is designed to illustrate the various forms of benign tumors and the different types of disease of the breast. The nomenclature employed is that suggested by Dr. J. C. Warren in his article on the classification of benign breast tumors, read as the Oration in Surgery at the Portland meeting of the American Medical Association in 1905.

The chief object in this classification is to give a nomenclature which is clinically descriptive but at the same time correct from a pathological standpoint and thus acceptable to both the surgeon and the pathologist. The surgeon wishes to know in regard to a given breast tumor whether it is sufficient to remove the growth alone or whether it is best to amputate the breast.

The gross appearances of all these breast tumors is characteristic and the surgeon who is familiar with their gross pathological appearances can in nearly every instance make the correct diagnosis without having recourse to the pathologist and the microscope.

In making the classification it seemed best to separate at once the discrete encapsulated tumors from the more common diffuse condition affecting usually the greater part of one or both breasts, to which the name "Abnormal Involution" has been applied. This condition was formerly called "cystic disease" or "chronic mastitis."

The tumors are subdivided to distinguish those in which the overgrowth of the fibrous tissue is the chief characteristic from those in which the epithelial proliferation plays the important rôle.

The classification as adopted is as follows:

Tumors (fibro-epithelial).
(1) Fibrous group:
Periductal fibroma.
Periductal myxoma.
Periductal sarcoma.
(2) Epithelial group:
Fibro cyst-adenoma.
Papillary cyst-adenoma.

Abnormal involution.
(1) Cystic type.
(2) Epithelial type.
(*a*) acinal.
(*b*) papillary.
(*c*) adenomatous.

Tumors: fibrous group. The periductal fibromata are the tumors often termed "simple fibromata" or "intracanalicular papillary fibromata," the term periductal being employed to designate the point of origin of the tumor from the fibrous tissue immediately surrounding the ducts.

The periductal myxomata are similar but contain myxomatous tissue and are usually of larger size. The history usually given by the patient is that a small tumor has existed for some time but has suddenly taken on a rapid growth. These tumors are not clinically malignant in any sense and a large number of them are not true myxomata but only edematous fibromata.

The periductal sarcomata are similar to the above-mentioned tumors, their point of origin being the same, but they are very cellular and grow more rapidly. They are indigenous to the breast and are not particularly malignant, metastases being rare, if ever occurring. They have been called adeno-sarcoma, or cysto-sarcoma in other classifications. Sarcomata, such as are seen in other parts of the body, are also occasionally seen in the breast and should not be confounded with the periductal sarcoma.

Epithelial group. — The fibro-cyst-adenomata are tumors similar to the periductal fibromata but differ in that the epithelial elements are markedly increased. In gross they often contain cysts and the new formed acini are seen as whitish or glistening translucent points in the dull gray-white, fibrous tissue.

The papillary cyst-adenomata are either single or multiple and are usually situated near the nipple. They are seen as cysts of varying size from the walls of which project soft, friable, papillary ingrowths which fill the cavity to a greater or less extent. These ingrowths are often necrotic or hemorrhagic. The fluid contained in these cysts is almost invariably bloody and a bloody discharge from the nipple is the most common clinical symptom of this condition. As would be expected in a tumor in which the epithelium shows such a marked tendency to grow, retrograde changes into malignant disease are not uncommon. Thus in a series of twenty cases of these tumors, three were associated with adeno-carcinoma.

Abnormal involution. — (Cystic disease, chronic mastitis.) The disease is seen commonly at the time of the menopause and signifies that the involution changes which occur at this time of life are not progressing in a normal manner.

Two main types are recognized,— the cystic and the epithelial. In the cystic type the change in the gland is chiefly fibrous and numerous cysts are formed by the contraction of the ducts at different points. These cysts vary greatly in size, form, and number, but are most commonly seen in the outer upper quadrant of the gland. The reason for this is obvious when we consider that, roughly speaking, at least one half of the mammary gland is located in this quadrant. This form of abnormal involution rarely undergoes retrograde change into malignant disease.

In the epithelial form of abnormal involution cysts are found as in the simple cystic variety, but the chief characteristic of the condition is the proliferation of the epithelium lining the cysts and ducts and acini. At times there appears also to be an actual new formation of these acini. In other cases the epithelium, within the cysts and ducts is heaped up, forming papillary ingrowths, while in the most extreme cases this epithelium has an adenomatous arrangement. This is the type of abnormal involution most often associated with cancer, the proportion of the cases varying from 10% to 12% according to various observers. It must be understood, of course, that any degree of abnormal involution between these two extreme types may be seen.

Specimens of the following tumors were shown: (1) Periductal fibroma, (2) periductal myxoma, (3) pariductal sarcoma, (4) fibro-cyst-adenoma, two cases; (5) papillary cyst-adenoma, four cases, one associated with cancer; (6) abnormal involution, three cases illustrating the various types.

A CASE OF GASTRIC ULCER. PERFORATION; OPERATION; RECOVERY.

BY FRANKLIN G. BALCH, M.D.

A. J., thirty-five, single, entered the Massachusetts General Hospital on the service of Dr. A. T. Cabot, Feb. 16, 1907. She was brought to the Accident Room at 6.50 P.M. with the following history:

Family history not obtained.

Personal history: No similar attack previously; catamenia and bowels regular. One year ago she had an attack of pain in the right hypochondrium lasting one week and accompanied by jaundice. Her doctor said she had gallstones.

Present illness: Three days ago she began to have indefinite pains in the epigastrium, shooting up into the chest and back. Her appetite was poor and what food she took distressed her. Eight hours before entrance she was seized with a sudden, severe prostrating pain in the epigastrium. She was nauseated and vomited several times. The pain continued very severe, mostly in the epigastrium and uncontrolled by morphia. Bowels had not moved for two days.

Present examination shows a well-developed and well-nourished woman. The pupils are equal and react. Nothing abnormal is found in the chest. The abdomen is not distended but is tympanitic throughout. There is slight general tenderness, most marked in the epigastrium, and slight general spasm and rigidity. Vaginal examination shows nothing remarkable. Reflexes normal.

Temperature 98°, pulse 96. White count, 25,000.

Operation by Dr. Balch. Patient in dorsal position, usual local preparation. An incision was made in the right border of the rectus and the muscle retracted. The peritoneum was opened with the escape of a

small amount of gas. The stomach was very slightly adherent to the peritoneum, but was covered with fibrin on its anterior surface, where a small punched-out perforation was seen near the pylorus. The peritoneal cavity was filled with turbid fluid; no adhesions or fibrin in lower part. The stomach was drawn up into the wound and the perforation closed with two rows of continuous Pagenstecker sutures. There was moderate induration about ulcer. The stomach was examined but no other perforations were found. The peritoneal cavity was washed out with normal salt solution. A small piece of omentum was sutured over the site of the perforation for reinforcement. A cigarette wick was placed to the right flank, to the region of the ulcer and to the lower abdomen. The wound was partly closed with chromic gut sutures in the muscle and peritoneum and silkworm-gut suture in the skin. The patient was sent to the ward in good condition.

She made a good recovery from ether. The wicks were all removed within the next forty-eight hours and the further progress of the case was uneventful. The principal points of interest in the case are the fact that the stomach contents were as nearly as possible sterile. The patient had eaten nothing on the day the ulcer perforated and almost nothing the day before. Then the operation was only about twelve hours after perforation. The suturing of the bit of omentum over the line of sutures in the stomach offered an additional safeguard against leakage. Washing the peritoneal cavity thoroughly with salt solution seemed wise in view of the general diffusion of the stomach contents. The partial suturing of the wound and the early removal of the wicks allowed of prompt healing and the wound, nineteen days after operation, looks as if it had healed by first intention.

CASE OF ACUTE GANGRENOUS PANCREATITIS.

BY D. F. JONES, M.D.

L. L., forty-four, female. Lodging-house keeper, was transferred to the South Surgical service from the East Medical on July 4, 1906.

History. — Habits: Three whiskies a day for about three months, six cups of tea daily.

Family history: One brother and one sister died of "phthisis."

Personal history: For three months she has had attacks of vomiting followed by pain in the epigastrium, occurring about once a week. They usually occur before breakfast and last two to three hours. Pain in the epigastrium, extending into the back, and rarely into both shoulders, with general abdominal soreness. The pain always follows the vomiting. She says she has not been jaundiced. In the intervals between the attacks she is perfectly well.

Three days before entrance she ate cucumbers at night. In the morning she vomited; this was followed by pain as in former attacks. She has continued to vomit almost continually ever since, with constant severe pain in the epigastrium, so severe that she has been unable to sleep. Has lost considerable weight.

Physical examination: Well developed, rather fat woman. Heart sounds faint. Abdomen full and rigid in upper right quadrant. Tenderness most marked here, but it extends across whole abdomen. Dullness in right upper quadrant and down the right side. Liver dullness from the fifth interspace to four inches below the costal border. A distinct tender mass can be felt in the region of the gall bladder, extending downward nearly to the umbilicus. Slightly jaundiced.

Operation July 5, 1906. Incision through the right rectus from the costal border downward. Gall bladder and stomach normal. The bile ducts could not be thoroughly explored because of the mass. Just below the border of the liver is a mass adherent to the anterior abdominal wall and extending posteriorly to behind the stomach. This mass is made up of gray necrotic fat tissue into which the finger can be pushed with ease. It extends to the region of the pancreas and across the spine over the pancreas. The whole mass was broken up with the finger and packed with several strips of gauze with a tube in the center. The condition of the patient was so bad that posterior drainage was not attempted.

The convalescence was long and tedious, but the patient was immediately relieved of pain except at intervals when she would have considerable pain with an increase of temperature. The temperature during the greater part of the time was between 99° and 100°.

She left the hospital in eight weeks with a small sinus which closed in a short time, since when she has been perfectly well.

Book Review.

The Operative Treatment of Prolapse and Retroversion of the Uterus. By J. INGLIS PARSONS, M.D., M.R., C.P., M.R.C.S., Physician to the Chelsea Hospital for Women, Late Surgeon to the Royal Maternity Charity, Fellow of the Royal Medical and Chirurgical Society, Obstetrical Society of London, British Gynecological Society, etc. London: John Bale, Sons & Danielsson, Ltd. 1906.

This is an attractive little red book of 90 pages with 26 illustrations in the text and six plates. It represents the author's conclusions as to the etiology, pathology and treatment of prolapse and retroversion after twenty years' experience on the staff of a special hospital for women.

In the portion devoted to prolapse, much stress is laid on the supporting action of the uterine ligaments, and the author calls attention to the importance of examining the woman in the upright posture in order to make a correct diagnosis of the degree of prolapse. The description of the anatomy and mechanics of prolapse is somewhat inadequate. The author's operation of injecting the bases of the broad ligaments with quinine in solution is described with care and a table of cases is given.

The chapters devoted to retroversion and retroflexion are very sketchy and unsatisfactory and embody nothing that is new.

Solid ground is reached, however, in the closing paragraphs, on the discussion of the relative value of ventrosuspension and Alexander's operation and shortening of the round ligaments. Here the twenty years' experience counts at its full value.

[Through an oversight this review has been delayed in publication, though mention was made of the book in the review column of a previous number of the Journal. ED.—]

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SOCIAL LEGISLATION IN GERMANY.

During the visit of Prof. Friedrich Müller in Boston he read a paper at the Boston Medical Library on "Social Legislation in Germany and Its Influence on the Care of the Sick." As Dr. Richard Cabot said, in introducing Professor Müller, the subject was something of a departure from the papers ordinarily read at such meetings. The importance which the relation between the medical profession and the people at large has assumed in Germany, outside of what we should call strictly professional lines, will, no doubt, before long have its counterpart in America. It is evident, as we have repeatedly had occasion to observe, that the scope of the physician is widening in this country, and that his connection with the great social questions of the time is becoming more intimate. It was, therefore, a peculiarly happy choice of subject that an American audience should have had an opportunity of hearing from an authoritative source the situation regarding these matters in Germany where, no doubt, such legislation has developed more completely than in any other country.

In 1883 national German legislation was started to provide for three kinds of compulsory industrial insurance: First, against disease; second, against invalidism and old age; third, against accident. The bearings of these forms of insurance Dr. Müller dwelt upon at length.

It appears that fifteen million people in the German Empire have the first form of insurance, namely, against disease. Every one who works for wages pays two thirds of the cost of his insurance, the other third being paid by the employer. Under these conditions insurance corporations are formed under municipal control. The advantages to the employee resulting from this arrangement are that he receives free medical treatment and medicine at home or in a hospital for six months in case of illness; that he has daily alms equal to one half of his wages, and finally that something is paid at his death, if he dies within the limit of six months. Some companies go even further than this,—build convalescent homes and, in addition, care for the wives and children of the sick. By this first form of industrial insurance, therefore, the employee is assured of medical care through any acute illness he may have, and in some instances his family becomes the beneficiary at his death. This, however, does not provide for more chronic invalidism and the advent of old age.

The second form of insurance, that against invalidism and old age, provides for this large contingent of the working population. Through this all over seventy receive a dole, and many younger persons, if disabled. Chronic disease, also, as, for example, affections of the heart, kidneys, tuberculosis or tabes, entitle holders of the insurance to an invalid benefit provided he is pronounced incapable of earning one third of his former wages. This type of insurance is at the present time held by twelve million people, the amount paid to each being from forty-five to one hundred and twenty dollars yearly, one half by the employers' premiums and one half by the employees'. It thus clearly becomes the interest of insurance corporations to prevent illness, and to this end they build sanatoria and see that the sanitary conditions of tenement houses are satisfactory.

Finally, the third form of insurance is that against accident. This is paid wholly by the employer; hence he naturally takes every means to guard his machinery and to prevent accidents to his employees. Carelessness on the workman's part is disregarded. Both physical and psychical traumata are subject to benefit, the exact amount of which in individual cases is carefully worked out. A specified sum, for example, is given for the loss of an eye, right hand, left hand, etc., and about such crippling injuries there is little controversy. This system, particularly in relation to minor accidents, naturally leads to much malingering and exaggeration on the part of the workmen. There is also much perfectly innocent auto-suggestion. The significance of nervous disorders resulting from slight traumatisms was fully recognized by Professor Müller, who even went so far as to say that the

traumatic psychasthenia thus produced may result in genuine arteriosclerosis. It is clearly understood that this form of insurance may and actually does do much harm, but it is also felt that the good out-balances the harm and that in spite of the rapid growth of German industries the number of accidents has actually decreased. Naturally, the lower courts and the higher courts of appeal are kept busy deciding disputed cases as to the presence or degree of injury from accident, injury or from chronic disease. This throws a peculiar responsibility, not only upon the courts, but particularly upon the examining physician, which we in this country have not, as yet, been obliged to meet, but which in some modified form, will, in all probability, be forthcoming.

The sick benefit insurance laws at first met considerable opposition from physicians who were practically forced either to be insurance doctors or to reduce their ordinary fees. This fee cutting actually led at one time to a reduction to five cents a visit. Under the insurance laws the patient could call a doctor as often as he wished, and the doctor also could make as many visits as he chose. These difficulties finally led to a strike of the doctors against corporations which resulted in higher and more appropriate fees. It also led to the right of a patient to choose his own doctor which previously had not been possible. As the matter now stands, the doctors are satisfied, but the corporations suffer a certain hardship from the occasional unscrupulousness of physicians who, through good nature or for other reasons, may make unnecessary visits or certify to disabling illness.

The lesson which all this has for us is, perhaps, not immediately apparent. Our form of government is different; our institutions have grown up in a wholly different soil from that of Germany, and there is a certain individual independence which is, perhaps, more marked here than there. At the same time, fundamentally, industrial conditions are the same the world over, and it is altogether probable that we in America will sooner or later come to some such systematized method of dealing with this great social problem, although it will probably be in our own way. In the meantime much is to be learned from the wide experience of Germany. We call attention in this connection to an article by Dr. Edward O. Otis, which appeared in this JOURNAL for March 24, 1898, on "Hospitals and Sanatoria for Consumption Abroad," and to a valuable paper by Dr. E. A. Locke, now being published, on "The Crusade against Tuberculosis in Germany."

RENAL CYSTS AND CYSTIC KIDNEY.

THE origin and mode of formation of cysts in the kidney are frequently the subject of discussion. Numerous theories have been advanced to explain them, and all of these theories find both advocates and opponents. For fifty years interest in this subject has been maintained and its final solution has, perhaps, not yet been reached.

It is common in considering cysts in the kidney to separate the occasional renal cyst from the multicystic kidney, usually bilateral, and to regard these two groups as somewhat different in origin. Then the rather frequent small cyst, associated with chronic interstitial nephritis, is commonly explained as a result of the changes in the interstitial tissue, leading to an obstruction of a urinary tubule with retention of secretion and consequent dilatation. On the other hand, Aschoff and his pupil Ruckert[1] have supported the view that all cysts in the kidney are congenital and all owe their origin to retardation of development in an earlier or later stage of fetal life. Busse[2] believes that the cystic kidney is the result of developmental disturbances in which defective, deficient or excessive growth of elements already present in the kidney play a part. This view does not, however, support the idea of a neoplastic nature, an origin from misplaced germ cells, as believed by many. Bramwarth[3] has studied the kidney cysts in a large number of cases and also the kidneys from nineteen newborn children. In the latter he finds cysts in 50% of the cases without any evidence of a past or present inflammatory process. Much more frequent than true cysts are slight irregularities in the formation of tubules or glomeruli that might result in cysts later. In adults he finds that there is no constant association of cysts with inflammatory processes even in chronic interstitial nephritis. So Bramwarth believes that the cysts are due to developmental errors, and that in inflammatory conditions cysts develop more rapidly and so are more commonly macroscopically evident. He draws no sharp distinction between renal cysts and cystic kidney.

Bunting[4] has studied two cases of cystic kidney in the new born. In these he finds evidence of an epithelial hyperplasia in ducts which otherwise appear normal. This he believes leads first to a general cylindrical increase in the size of the ducts, but gradually there is a greater

[1] Festschrift. für Orth., 1903, cited by Bramwarth.
[2] Virch. Archiv., 1904, clxxv, 442.
[3] Virch. Archiv., 1906, clxxxvi, 341.
[4] Jour. of Exp. Med., 1906, viii, 271.

dilatation at points in the ducts less fixed by the architecture of the organ, and cystic tubules are the result. That cysts not intratubular ingrowths thus result Bunting explains by assuming that the normal urinary pressure within the tubule exceeds the resistance offered by the supporting kidney framework. While primary hyperplastic in nature, Bunting does not consider cystic kidney as truly neoplastic.

The trend of this recent work is against the retention theory of the formation of renal cysts and places their origin in the period of fetal life. Inflammatory processes are regarded as associated, not causative, though they may exert a stimulative action and render potential cysts macroscopically evident. Some believe them purely the result of errors in renal development; others give them a modified neoplastic origin. Cystic kidneys also have a clinical interest. To both physician and surgeon they present a problem in diagnosis. More frequently it is the presence of tumor rather than the existence of symptoms that brings the patient to the physician. Lund [5] has recently discussed cystic kidney from the surgical view point. The pain and discomfort due to their size and mobility present themselves as a surgical problem. For these Lund recommends free incision and puncture of the larger cysts and suturing of the organ in position. Recognition by the surgeon of the almost constant bilateral occurrence of cystic kidney is essential to prevent removal of one kidney when its fellow is already insufficient for the burden of a double duty. In their later stages most cases come to the physician for treatment of symptoms essentially those of a chronic nephritis. With cystic kidney, cystic liver and various developmental anomalies are frequently associated, but this seldom is an aid in diagnosing the renal condition

"LETTERS ON PSYCHOTHERAPEUTICS."

The interest which is now everywhere apparent regarding the general subject of psychotherapeutics is still further exemplified by the recent publication in translation of a small German brochure by Professor Oppenheim entitled, "Letters on Psychotherapeutics." It is evident to those who have followed the trend of thought in this subject during the last few years that what we now most need is a clear and common sense presentation of certain principles of treatment by which practitioners in general may make use of mental methods in suitable cases. The difficulty up to this time has been largely the lack of methods. It is a common enough assertion on the part of intelligent physicians that they have always practised psychotherapeutics, and that the recent movement is merely the rehabilitation of an old doctrine. This is, of course, perfectly true in one sense, but the indefiniteness of the whole matter has been a distinct bar to progress. It is well, therefore, that methods should be discussed and particularly simple methods which practitioners may put into immediate practice.

A somewhat justified criticism of Dubois' much-talked-of book on psychotherapeutics is that it gives no distinct rules by which others may profit. The book has brought clearly to the forefront the fact that psychotherapeutic measures are frequently useful and indispensable in certain cases, but beyond this it gives the author's personal method of dealing with patients rather than distinct directions which may be followed by others. On the other hand, certain other writers on the subject have gone so deeply into the psychological aspects of the problem and have elaborated their methods to such a degree that practitioners in general are wholly unlikely to profit by their writings, except in an indirect way.

It is, therefore, with a certain sense of satisfaction that we take up the simple letters to patients which Oppenheim has written and which he proposes further to enlarge at a later date. Dr. Alexander Bruce, of Edinburgh, has made an admirable translation from the German which he has seen fit to undertake in the belief that the letters give much valuable information not to be found in the ordinary textbook concerning the rational treatment of various forms of functional and nervous derangement. It is, however, not Oppenheim's intention to limit the possible usefulness of this method to the neuroses, recognizing, as he does, the fact that psychotherapy has a word to say in every case. Oppenheim strikes the keynote of the situation when he says in the preface, "To those of my young colleagues especially, who desire to occupy themselves with psychotherapy — and that is almost equivalent to saying with treatment in general — I hope that these letters will afford some guidance which in some respects may be more welcome to them than many of the writings which deal theoretically with the indications and the nature of psychotherapy." The value of these letters lies in their simplicity and in the demonstration which they give of a practical means of approach-

[5] Jour. of A. M. A., 1906, xlvii, 479.

ing an often extremely difficult problem. The letters are addressed to patients and are in great part, at least, a reproduction of letters actually written. The method could not be more direct and cannot fail to interest practitioners of whatsoever sort. In general, we trust that this rather original plan which Oppenheim has adopted may lead to further writing of the same sort on the part of those who may speak with authority in these matters. We need to popularize these methods of treatment among physicians, and there can be no better means of accomplishing this end than by the publication of such simple and practical propositions as are brought forward in this pamphlet.

MEDICAL NOTES.

CLOSING OF THE PARIS MORGUE. — The Paris morgue is apparently no longer to be open to visitors. This is in accordance with good public morals.

DEATH OF O. ISRAEL, M.D. — The death is announced of Dr. O. Israel, professor of pathological anatomy at Berlin, at the age of fifty-three. Israel was formerly an assistant of Virchow, and for some years past has been editor of Virchow's *Archives*.

FOLIA UROLOGICA. — With Prof. James Israel, of Berlin, as editor-in-chief, Prof. A. Kollmann, of Leipzig, Dr. G. Kulisch, of Halle, and Dr. W. Tamms, of Leipzig, as associate editors, and the other principal urologists of Europe as collaborators, these new international archives are announced by the house of W. Klinkhardt, Leipzig.

STERILIZATION OF CRIMINALS. — The Portland *Medical Sentinel* reports that the bill providing for the sterilization of certain classes of criminals and the hopelessly insane, which was championed by Dr. Owens Adair, of Astoria, was killed in the House of Representatives of the Oregon legislature at Salem. It was a little too far advanced for the legislature of to-day.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, April 3, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 32, scarlatina 45, typhoid fever 0, measles 14, tuberculosis 54, smallpox 1.

The death-rate of the reported deaths for the week ending April 3, 1907, was 20.52.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, March 30, 1907, was 234, against 222 the corresponding week of last year, showing an increase of 12 deaths and making the death-rate for the week 20.26. Of this number 130 were males and 104 were females; 228 were white and 6 colored; 136 were born in the United States, 89 in foreign countries and 9 unknown; 36 were of American parentage, 167 of foreign parentage and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 40 cases and 1 death; scarlatina, 46 cases and 3 deaths; typhoid fever, 4 cases and 0 deaths; measles, 9 cases and 0 deaths; tuberculosis, 56 cases and 15 deaths; smallpox, 1 case and 0 deaths. The deaths from pneumonia were 39, whooping cough 1, heart disease 13, bronchitis 7 and marasmus 0. There were 15 deaths from violent causes. The number of children who died under one year was 42; the number under five years 57. The number of persons who died over sixty years of age was 53. The deaths in public institutions were 82.

There were 6 cases and 6 deaths reported from cerebrospinal meningitis during the week.

SMALLPOX IN CHELSEA, MASS. — It is reported that seven cases of smallpox have appeared in Chelsea, Mass., all of which had recently come from Lawrence where cases of the disease have been under observation for some time past. Immediate measures will be taken to prevent the possible spread of the disease, for which five hundred dollars has been voted by the City Government.

A VERDICT AGAINST AN OSTEOPATHIST. — A case has recently been tried in Burlington, Vt., in a suit to recover damages from an osteopathic practitioner for alleged malpractice. The jury, after four hours' deliberation, brought in a verdict for the plaintiff. It was alleged that the plaintiff had become a confirmed invalid and unable to walk as a result of the treatment which had been instituted.

NEW YORK.

BEQUESTS. — By the will of the late Francis P. Furnald, of New York, his large estate is to be divided on the death of his wife and $600,000 devoted to benevolent purposes. Of this amount Columbia University is to receive $300,000 for the building of a dormitory in memory of his deceased son, and the Presbyterian Hospital $100,000.

Water Filtration. — The presence of typhoid fever at Katonah, Westchester County, in the Croton watershed, will, it is hoped, give a desired impetus to the project which has been talked of for some time of installing a great filtration plant at the Jerome Park reservoir. Since the first three cases of typhoid at Katonah were made known several new cases and two deaths from the disease have been reported. It is now nearly two years that the report to the Mayor, of Health Commissioner Darlington, urging filtration for New York, has been on file. While much has been done in the last few years to protect the watersheds supplying Manhattan and the Bronx, Dr. Darlington in his report pointed out that these extended over three hundred and sixty square miles, and that within such an area, where there were many inhabitants, the task of giving absolute protection from pollution was impossible. Furthermore, a part of the water supply comes from the state of Connecticut, which is quite out of the jurisdiction of New York City and State. It is gratifying to learn from a recent report of Chief Engineer De Varona that 70 per cent of the water supply of the borough of Brooklyn is now subject to effective artificial and natural filtration. He also strongly recommends the filtration plant at the Jerome Park reservoir, where the Manhattan and Bronx supply debouches directly into the city's pipes, estimating that it can be established at a cost of $7,600,000 and be completed, at the latest, in 1908.

Recovery from Traumatic Aphasia by Operation. — An interesting case of recovery, through operation, from complete aphasia, due to traumatism, is reported from Bellevue Hospital. The aphasia resulted from a blow on the head three months ago, made by a blackjack in the hands of a negro in an attempt to rob the patient, who is thirty-seven years of age. While he recovered from the other symptoms due to the assault, the aphasia persisted. The presence of a fracture of the skull having been demonstrated, an operation was undertaken for the purpose of removing the bone believed to be pressing upon the brain, with the gratifying result that as soon as the patient came out of the anesthesia he was able to talk once more.

A Large Heart. — A heart stated to be the largest on record was found at an autopsy made on March 30, by coroner's physician Philip O'Hanlon and Prof. John C. Larkin, of the College of Physicians and Surgeons, on the body of a prisoner in the Tombs awaiting trial on a charge of perjury. It weighed no less than four pounds and two ounces, and will be placed in the pathological museum of Columbia University Medical School. This enormous hypertrophy of the organ had developed in connection with chronic Bright's disease, and in consequence of it the left lung was compressed into a small compass and pushed far over to one side.

"Brainstorm." — Three boy burglars, each of whom is fourteen years old, were recently caught in the act of looting the unoccupied house of Dr. Austin Flint, in East 19th Street. When arraigned before the sergeant at the police station, and asked what he had to say for himself, the leader of the gang, who had evidently been reading the newspaper accounts of the Thaw trial, in which Dr. Flint is one of the prosecution's expert alienists, replied: "I guess I had one of them brainstorm feelin's."

Obituary.

ARTHUR E. SANSOM, M.D. Lond., F.R.C.P. Lond.

Dr. A. E. Sansom, consulting physician to the London Hospital, died at Bournemouth, England, March 10, at the age of sixty-nine years. He was born in Wiltshire, and graduated from King's College, London, after having studied for a time in Paris. On account of failing health he retired from the practice of medicine two or three years ago. His name is probably associated in the minds of our readers with his book on "The Physical Diagnosis of the Diseases of the Heart," and also with his contributions to "Quain's Dictionary of Medicine," to the "Twentieth Century of Practice of Medicine" and to Allbutt's "System of Medicine."

Current Literature.

The Journal of the American Medical Association. March 16, 1907.

1. Jackson, E. *The Organized Medical Profession and Some of its Enemies.*
2. Jordan, E. O. *The Place of Pathology in the University.*
3. *McCampbell, E. F. *The Adjuvant Action of Quinine Hydrochlorate in Infections by the Bacillus of Tetanus.*
4. Fairbanks, A. W. *Cerebral Syphilis in Childhood.* (Concluded.)
5. Stevenson, M. D. *Considerations in the Extraction of Cataract.*
6. *Verhoeff, F. H. *Cataract Extraction with Modified Iridotomy.*
7. Black, M. *Use of the Secondary Cataract Knife.*
8. *Coffey, R. C. *Principles and Mechanics of Abdominal Drainage.*
9. *Krauss, W. *Problems and Duties in Relation to Malaria.*

3. McCampbell has repeated the work of Vincent, to which he refers, as to the danger of tetanus from the subcutaneous use of quinine. Vincent held that the injection of quinine had a favoring action on the development of tetanus. This McCampbell can in no way confirm. He has been able to gather but few cases in this country where tetanus has developed after quinine injections, and believes that in all the cause was imperfect asepsis.

6. Verhoeff offers the following method of cataract extraction as having special advantages: he makes the usual corneal incision; then, grasping the iris as near its root as possible, he cuts a small hole in it with the scissors and it returns spontaneously to the anterior chamber. Small blunt-pointed scissors (de Wecker's) are introduced through the corneal opening and one blade passed downward through the hole till its point projects below the pupillary margin. The blades are then quickly closed, making a clean cut through the iris. With the cocain mydriasis the cut edges separate at once, usually as widely as after ordinary iridectomy. The lens capsule can then be opened and the lens extracted in the usual way. In the toilette, care should be taken to free the pillars of the coloboma from the incision, and it is probably best to instill atropin immediately after the operation. He claims for this operation the advantages of both the simple and combined operations without their disadvantages.

8. Coffey has experimented with the various methods of abdominal drainage, more especially the physics of tubal and capillary abdominal drainage. By making careful sections of a cast of the abdominal cavity he demonstrated that the deepest situated portion of the abdominal cavity, in the supine position, is in the flank, and that to drain properly from this into the pelvis would probably require the raising of the trunk at an angle of 60 or more degrees, while to drain the pelvis into the flanks would require the raising of the feet very high. In the lateral position, however, almost all the cavities can be drained. His general conclusions are stated by him substantially as follows: 1. Gravity is the chief factor in peritoneal drainage, therefore drainage must reach the most dependent portions. 2. Gauze or capillary drainage is the most widely applicable and useful of all drains, if used in sufficient quantity to preclude its being choked by *débris*, and provided the drain is as large in circumference at its exit as at any point within the cavity and provided it is in contact with abundant dressings on the outside. 3. Gauze drainage is a very dangerous agent if the above principles are not kept in mind. 4. If a surgeon remembers that his drain ceases to be effective in a few hours, he places it with the idea of removing septic fluid in the shortest possible time according to the principles of drainage, and generally gets results. 5. If he has the delusion that his drain will continue to work for days and that the fluid will flow up hill to get it, he will probably be disappointed. 6. If he habitually removes gauze drains before they are naturally loosened, many of his patients will have secondary septic or post-operative hernia or obstruction. 7. Drainage (except a small precautionary cigarette or tubular drain) can rarely be safely removed before the fifth or sixth day. 8. Capillary drainage is inefficient for defined abscess cavities. 9. Tubular drainage is suitable for defined abscess cavities, and may be used for gravity drainage from the peritoneal cavity, but is an uncertain drain in the peritoneum. The article is illustrated.

9. Krauss maintains that there is opportunity for great improvement in the measures employed to stamp out malaria. No region should be uninhabitable on account of malaria. Malaria is too much dreaded since it bears the blame of many fatal cases which are not malaria. In infected regions cases from tuberculosis and sepsis and malignant disease are believed to be due to malaria, and it is from these that the high mortality of supposed malaria results. True malarial fever is extremely amenable to treatment, and probably a spontaneous immunity develops. Chronic malaria, Krauss believes, is a state of relative immunity in which repeated reinfections occur. In acute cases, such as are met in the spring, quinine is efficient; in later cases, however, it may induce hemoglobinuria, and if hemoglobinuria is present, its use is dangerous. Krauss urges that an effort be made to stop the occurrence of malaria by routine blood examinations in the inhabitants of malarial regions. Prevention o- malaria may be accomplished in part by the screening of houses and by destruction of breeding places of mosquitos, but mainly by early diagnosis and thorough treatment of the human host of the parasite.

BULLETIN OF THE JOHNS HOPKINS HOSPITAL.
MARCH, 1907.

1. *EMERSON, C. P. *Acute Leukemia.*
2. ROTCH, T. M. *Necessity of a More Uniform Nomenclature of Diseases.*
3. RILEY, I. W. *Benjamin Rush as Materialist and Realist.*
4. CULLEN, E. K. *A Case of Multiple Tumors in a Dog.*

1. Emerson discusses the nature of acute leukemias in connection with three cases of special interest which he reports. The first case was one of acute lymphatic leukemia without enlargement of lymph glands or spleen, but with localized involvement of the bone marrow; many of the white cells of the blood were soluble in the dilute acetic acid used in blood-counting. Death occurred two months after the first symptoms were noticed. There was severe anemia and slight elevation of temperature. This case illustrates the fact that acute leukemias do not always present the typical appearances of chronic leukemias. The condition cannot be diagnosed without blood examination; without this it may simulate many diseases from typhoid fever and septicemia to purpura hemorrhagica and pernicious anemia. In origin, acute leukemias of all types are probably myelogenous, the lymphoid cells of the so-called lymphatic leukemias being more probably primitive marrow cells or myeloblasts. The second case is one of acute leukemia, resembling a septicemia, in which the leukocytes were peculiarly resistant to all staining methods and could not be classified. The third case probably belonged to the class of "aplastic leukemias," perhaps as the final stage of an acute leukemia previously of the ordinary type. The case presented appearances typical of acute leukemia except that the blood picture was that of severe aplastic anemia.

THE LANCET.
MARCH 9, 1907.

1. *GOADBY, K. W. *Pyorrhœa Alveolaris.*
2. *ROGERS, L. *Kala-azar.*
3. URQUHART, A. R. *Insanity, with Special Reference to Prognosis.*
4. CLARKE, J. J. *The Post-Operative Treatment of Congenital Dislocation of the Hip-Joint.*
5. GILES, A. E. *Some Observations on Uterine Fibroids.*
6. HOLLANDER, B. *Operative Treatment of Traumatic Psychosis.*
7. *GARLAND, C. H., and LISTER, T. D. *A National School for Consumptives: A Study of the Relation of the Sanatorium to the Problem of the Working Class Consumptive.*

1. Goadby describes the history of this condition and the local condition in the mouth. The disease has been known to occur in epidemics in Switzerland and among the American troops in Cuba. The general constitutional disturbances resulting from Rigg's disease are far more important than any local trouble. Infection into the body takes place by direct continuity of tissue, by the swallowing of bacteria, and from the gums into the blood stream. A secondary anemia is the commonest manifestation; gastro-intestinal disturbances, skin eruptions and joint trouble may result. A number of different organisms have been found more or less constantly, chiefly spirochetes and comma-shaped bacilli. Many eosinophiles may be present. He gives several tables showing what organisms were found in his cases. In a few, the same organisms that prevailed in the pus around the teeth were also cultivated from the gums. The treatment is local, careful cleansing with removal of teeth, if necessary, and general, to combat the anemia or other complications. In many cases the opsonic index was taken for the germ found in the mouth.

2. In this paper Rogers discusses the infectiousness of kala-azar and then considers the parasite and its distribution in the human body. To W. B. Leishman and C.

Donovan belong most of the credit for the discovery of the parasite. J. H. Wright, of Boston, described similar bodies in a case of Delhi boil, but this is now proven to be a distinct disease. Fresh unstained blood smears give the best results. The organisms can be found, if care is taken, in practically every case of the disease in almost every organ and tissue of the body, but especially in liver and spleen. Rogers was the first to grow the organisms outside the body. This had to be done at a low temperature, 27° C. He describes his methods and the parasite itself in detail. It is similar to but *not* identical with the trypanosome, being characterized by an extra corporeal flagellate stage. He describes the cultural characteristics, feeding experiments and the measures taken to prevent infection and the spread of the disease to other villages.

7. To control consumption among the working classes a combination of medical, charitable, social and administrative efforts is necessary. In most instances outpatient "treatment" of consumption is a farce. Education among the poorer classes is the great need, and the poorer classes must be taught that they must help themselves and not sit back and let others do the work. Sanatoria should be simplified and made educational and not purely medical. The spirit of laziness there inculcated is a grave danger. Early diagnosis must be taught the profession. Graduated employment for those leaving or about to leave sanatoria is very important. This paper is an excellent presentation of some evident evils in the present treatment of consumption among the poor and of what should be done for the future.

British Medical Journal.

March 9, 1907.

1. *Griffith, T. W. *A Series of Five Cases of Friedreich's Ataxy Occurring in Two Families.*
2. White, E. W. *The Treatment of Incipient Insanity and Borderland Cases of Insanity in General Practice.*
3. Rawling, L. B. *A Case of Cerebellar Abscess; Evacuation. Recovery.*
4. Freyer, P. J. *Total Enucleation of the Prostate for Radical Cure of Enlargement of that Organ.*
5. Hall, W. W. *Cases of Tetanus Treated with Antitetanic Serum. Recovery.*
6. Hall, I. W. *The Staining of Animal Parasites.*
7. Rogers, L. *Kala-azar.*

1. This is an interesting consideration of this disease from a clinical point of view. Several cases are cited. It is a family disease, with etiology still obscure and treatment unavailing.

The Practitioner.

March, 1907.

1. Young, M. *The Diagnosis and Treatment of Infective Throat Conditions.*
2. Ball, A. *Sphincteric Control of the Male Bladder and its Relation to Prostatectomy.*
3. *Hichens, P. S. *Some Remarks on Hemoptysis and its Treatment.*
4. Wallace, A. J. *A Note on Cæsarian Section, based on an Experience of Sixteen Cases.*
5. Tweedy, E. H. *Post-partum Hemorrhage.*
6. Hall, A. *Some Points Connected with Embolism.*
7. *Leedham-Green, C. *The Antiseptic Action of Metallic Sutures.*
8. Pringle, J. H. *Remarks on the Measurement of the Neck of the Femur.*
9. Bennett, A. G. *Physical Methods of Treating Heart Disease.*
10. Moore, F. C. *Diseases of the Stomach. A Review of Some Recent Work.*
11. Fowler, F. *The Treatment of Sciatica.*

3. Hichens details several causes of hemoptysis not due to pulmonary tuberculosis. Among these are cases of neurotic and anemic young women with carious teeth and pyorrhea alveolaris; others are pharyngitis and tracheitis and slight nasal hemorrhages. In heart disease, especially mitral stenosis, it is common, as well as in late stages of interstitial nephritis and arteriosclerosis. The majority of cases, of course, are due to tuberculosis. As regards treatment of hemorrhages in phthisis, he considers the subject under the heads of posture, diet, purgatives, vasodilators and drugs to increase the coagulability of the blood.

7. Leedham-Green has made some interesting experiments on the comparative power of inhibiting bacterial growth of various metallic sutures. He concludes that gold, platinum, tin, aluminum, magnesium and nickel, and, to a slightly less extent, lead and silver, have no inhibitory action. Iron varied according to the amount of oxidation that took place. Copper had by far the greatest bactericidal power. Bronze wire (copper, 95 parts; aluminum, 5 parts) is by far the best and is rapidly supplanting silver wire in all suture work on the continent of Europe.

Deutsche Medizinische Wochenschrift, No. 9.

Feb. 28, 1907.

1. Ribbert, H. *Human Tissue Cells as Parasites.*
2. *Bonniger, M. *On the Pathology of the Cardiac Rhythm.*
3. Rumpf, E. *The Prognosis of Pulmonary Tuberculosis.*
4. Spengler, C. *New Staining Methods for Bovine and Human Tubercle Bacilli and Their Differential Diagnosis.*
5. *Kruse. *Some New Investigations on Dysentery.* (Concluded.)
6. Freund, R. *Use of Benzosalin.*
7. Oppenheimer, H. E. *Progress in the Making of Spectacles.*

2. Bonniger relates the great advances in the knowledge of the physiology of the heart, resulting from experimental studies of the heart in animals, and consequently our widened conception of the function of the heart in disease. Out of the many varieties of arrhythmia he considers especially that group in which the auricles and ventricles contract synchronously for considerable periods of time. Mackenzie and others have observed and reported such cases. The author has seen in Kraus's clinic a number of cases of this "ventricular" type of rhythm, often lasting months. Out of sixty cases of systolic venous pulse, which he observed, one third were of this variety. The pulse picture is naturally much like that of tricuspid regurgitation, but the records obtained from artery and venous tracings do not show any sign of auricular contraction, as in tricuspid disease, therefore the auricles must contract synchronously with the ventricles or not at all. That the former was the case the author proved by observing active auricular contraction through the fluoroscope. The clinical symptoms associated with this type are also different and are, in brief, marked irregularity of rhythm, systolic venous pulsation, no liver pulsation, and slight general disturbance without signs of the passive congestion so marked in tricuspid disease. In such cases it is evident that the auricle and ventricle both respond to stimuli received from the auricular-ventricular bundle, and for the time being these stimuli dominate the cardiac rhythm. The importance of these cases, aside from constituting a sharply defined group among the many irregularities of heart rhythm, lies in the therapeutic reason that digitalis would only increase the irregularity and tachycardia and therefore do harm.

5. Kruse reviews the etiology of the dysentery group of diseases, urges the need of a more exact classification of the different forms, and discusses some animal experiments undertaken to determine the toxic powers of the different organisms, their pathogenicity, and finally some of the various immunity conditions. He distinguishes two groups, (1) the true dysentery or Shiga bacillus, found all over the world, mostly in large and small epidemics, and the pseudo dysentery group, which the author first described in 1901. This group is made up of a number of nearly related organisms, one of which is the variety described by Flexner in 1902. These bacilli resemble the true Shiga in most respects, but do not give the specific serum reactions. They are apt to be found in asylums among the insane, and cause follicular enteritis, which has a better prognosis than true dysentery. The diagnosis between the true and pseudo types can be made with comparative certainty by agglutination tests. The organism does not secrete a soluble toxin and is not motile. Aside

from this it is evident that dysentery-like disorders are often caused by mixed infections. Kruse maintains that the dysentery serum acts, in three ways, — antitoxic, bacteriocidal, and by increasing the opsonins, with the principal action bacteriocidal. Good results from the use of serum have also been obtained in pseudo and mixed infections.

BERLINER KLINISCHE WOCHENSCHRIFT, No. 4. JAN. 28, 1907.

1. FIBIGER, J., and JENSEN, C. O. *The Significance of Infected Milk in Primary Intestinal Tuberculosis of Children.* (Continued article.)
2. ASCOLI, and IZAR. *The Effect of Colloid Metals on Liver Autolysis.*
3. *LANGSTEIN L. *The Significance of Albumin which can be Precipitated by Acetic Acid in the Urine of Children.*
4. FRIEDENTHAL, H. *The Silver Spirochete Question.*
5. BRODZKI, J. *Investigations on Liton Bread, a New Food for Diabetics.*
6. KROMAYER. *The Use of Light in Dermatology.* (Continued article.)
7. *LEUCHS, J. *The Specificity of the Complement Absorption Method in Typhoid and Paratyphoid.* (Concluded.)

3. As the result of a study of the urine in over 100 cases of orthotic (or "cyclic") albuminuria, Langstein makes the following statements: (1) Albumin precipitable by acetic acid is present in every case; (2) cases in which *only* such albumin is present are never due to chronic nephritis; (3) in chronic nephritis of children such albumin is either entirely absent, or present in smaller amount than other albumin.

7. In this article Leuchs shows that Wassermann's complement-absorption method of demonstrating the presence of antibodies or bacterial substances is reliable in the case of typhoid and paratyphoid. The negative results with these bacteria recently reported by Moreschi are ascribed by Leuchs to faulty technic; Moreschi worked with bacterial suspensions instead of with bacterial extracts. A comparison with agglutination tests and Pfeiffer' experiments showed that the reaction is yet more delicate than these, and specific for the bacteria employed.

No. 5. FEB. 4, 1907.

1. FRAENKEL, C. *Investigations on the Spirillum of Obermeier.*
2. *SCHÜTZE, A. *Researches on the Wassermann Method in the Diagnosis of Syphilis.*
3. BAUER, S. *Hemiathetosis During Child-birth.*
4. *ULLMANN, B. *Juvenile Physiological Albuminuria.*
5. KROMAYER. *The Use of Light in Dermatology.* (Concluded.)
6. *FIBIGER, J., and JENSEN, C. O. *The Significance of Infected Milk in Primary Intestinal Tuberculosis of Children.* (Concluded.)

2. Schütze's researches offer further confirmation of the value of the Wassermann method of demonstrating specific bacterial substances (antigens) and antibodies. Of 12 cases of tabes, 8 were known to have had syphilis, and all of these showed positive reactions for syphilitic antibodies in the cerebrospinal fluid; the remaining 4 were negative. The method is of value only in the hands of experts, for it demands skill and ample laboratory facilities.

4. The study of physiological albuminuria is important, for such cases may easily be mistaken for nephritis. Ullmann found albuminuria in 33⅓% of 42 healthy school girls, ranging from a slight trace to 1% in amount. The appearance of albumin was often capricious and not dependent exclusively on posture. Casts were found in but one case, and then only at a single examination, and other signs of nephritis were absent. [It is to be regretted that the author employed only the nitric acid test, so that the kind of albumin was not determined. Nucleoalbumin is often found in such cases.]

6. Fibiger and Jensen, of Copenhagen, report 2 more cases of primary intestinal tuberculosis due to bovine bacilli, and discuss the importance of this mode of infection; out of 7 cases observed by them up to the present in children, no less than 5 proved to be of bovine origin, as shown by the extreme virulence of the bacilli for calves and rabbits, and by the fact that all the children had been fed on raw milk. In one instance the milk was derived from a herd containing a cow with manifest tuberculosis of the udder. In view of their experience and the recent literature, they conclude that milk infection is a comparatively frequent cause of primary tuberculosis of the intestine in children, a form of the disease which has recently been shown to be far from rare. [There is now little doubt but that milk infected with tubercle bacilli constitutes a real danger in the case of children, and therefore there is no indication to relax the present strict measures against tuberculosis of cattle.]

No. 6. FEB. 11, 1907.

1. VEIT, J. *The Indications for the Induction of Premature Delivery.*
2. EDENS. *Primary and Secondary Tuberculosis in Man.* (Continued article.)
3. *SKSCHIVAN, T., and STEFANSKY, W. *Serum Treatment in Dysentery.*
4. *RHEINBOLDT, M. *A New Sphygmoscope.*
5. RÜLF, J. *The Cancer Problem.*
6. LEWIN, W. *Infant Feeding.*
7. KUHN, P. *Southwest Africa as a Resort for Consumptives.*

3. Skschivan and Stefansky review the literature on the serum treatment of epidemic dysentery, and report on the results in 15 cases of their own. The results both in their cases and in those of Shiga, Kruse, Rosenthal and others have been very satisfactory. If possible the pathogenic organisms should be cultivated from the stools, as the serum usually employed is only effective against that form due to Shiga's bacillus. The dose is 20 to 100 cc., depending upon the severity of the case, and is given subcutaneously; it may be repeated in two or three days, if necessary. No bad effects have resulted other than those common after the injection of any form of serum, *i. e.*, urticaria, erythema, joint pains and transient fever. The good effects are usually apparent within twenty-four hours, the number of stools decreases rapidly, tenesmus diminishes and the general condition improves. The effect of the serum is compared by the authors with that of antitoxin in diphtheria. These statements apply only to the dysentery of adults, for in the case of children the etiology is more complicated and data are fewer.

4. Rheinboldt describes a simple apparatus to render visible the arterial increase of volume of the finger tip. This has proved of advantage in measuring the blood pressure by the Riva-Rocci method, enabling one to substitute the more reliable sense of vision for the palpating finger.

DEUTSCHES ARCHIV FÜR KLINISCHE MEDIZIN, BD. 89, HFT. 1–4, 1906.

FESTSCHRIFT HERRN GEH. RAT PROF. WILHELM EBSTEIN IN GÖTTINGEN.

1. BECK, C. *Value of Early Symptoms in Inflammation of the Appendix.*
2. BECKER, E. *Operation on a Tumor in the Cerebellopontine Angle.*
3. *BICKEL, A. *The Pathological Physiology of Gastric Catarrh.*
4. *DENEKE, T. *The Rontgen Diagnosis of Rarer Cardiac Lesions.*
5. *EBSTEIN, E. *The Clinical History and Meaning of Club Fingers.*
6. FRAENCKEL, P. *Investigations on the Origin of So-called Spontaneous Rupture of the Stomach.*
7. *GRÜTZNER, P. *Observations on the Meaning of the Musculature of Blood Vessels and Their Nerves.*
8. JOLLY, I. *Indian Priority Claims.*
9. LÉPINE, R. *The Role of the Secretions in the Pathogenesis of Diabetes Mellitus.*
10. *MENDEL, E. *Gout and Psychosis.*
11. NICOLAIER, A. *The Synthesis of Uric Acid with Formaldehyde.*
12. *RAUCHFUSS, C. *Paravertebral Dulness on the Sound Side of the Thorax in Pleural Effusions.*

13. SAMUELY, F. *Metabolism in Experimental Anemia.*
14. SCHITTENHELM, A. *Remarks on Nuclein Metabolism.*
15. *SCHREIBER, E. *Heart Block in Man.*
16. *TINTEMANN. *Arthrogryposis.*
17. TJADEN. *Diphtheria as a Scourge and the Fight against It.*
18. *WALDVOGEL. *I. Accidents of Thoracocentesis; the Origin of Albuminous Expectoration. II. The Pathogenesis of Obesity.*
19. WYSS, O. *Percussion and Auscultation of the New Born; the Symptoms of Pulmonary Tuberculosis in the first year.*
20. EBSTEIN, E. *The Work of Wilhelm Ebstein from 1859 to 1906.*

3. It is well known that in most cases of subacute and chronic gastritis the stomach contents are abnormally rich in mucus and poor in hydrochloric acid. However, very little is known about the laws governing secretions in these conditions. The pupils of Pawlow have shown that the formation of mucus follows other laws than those governing the secretion of the gastric juice. Freund working in the author's laboratory has shown that the direct stimulation of the gastric mucosa by an electric current causes the secretion of mucus but not of gastric juice. The same is true of the action of nitrate of silver, but both act only on the mucous membrane with which they come in contact and there is no reflex secretion of mucus in an artificial secondary stomach. No secretion of mucus is produced by stimulation of the vagus. Mucus appears to act there as a protective mechanism against substances coming in contact with the gastric mucosa. The hypoacidity associated with the hypersecretion of mucus is probably more the result of hyposecretion of gastric juice than of the neutralization of acid after secretion.

4. Deneke points out that fluoroscopic examination may give a correct diagnosis in some of the rarer cardiac lesions. As one example he cites a case of Adams-Stokes disease (heart block) in which the different rhythms of auricular and ventricular contraction could easily be seen. He says that x-ray apparatus is more generally present now in hospitals than recording tambours with which to make tracings of cardiac and venous pulsations, and should be used in diagnosing these cases. His second case is an interesting one of defective interventricular septum and transposition of aorta and pulmonary artery. The case was in a boy of eighteen, with cyanosis, club fingers and precordial bulging. Auscultation revealed no murmurs but an accentuated second sound at the base. Fluoroscopic examination showed synchronous ventricular-like contractions at both right and left cardiac borders and no evidence of any auricular type of contraction on the right border where it is usually found. On these observations the diagnosis was made and its correctness subsequently proven at autopsy.

5. E. Ebstein considers at some length the history of club fingers and the various clinical conditions under which they occur. He points out that the Hippocratic finger with its curved claw-like nails is to be distinguished from the club finger with its swollen end and associated changes in the nail. Closely allied to the latter type is the pulmonary hypertrophic osteoarthropathy of Marie which perhaps has the same underlying causes. At any rate many regard club fingers as an early stage of it. Club fingers occur in various chronic pulmonary and pleural diseases, especially those with which suppuration is associated. They occur also in hepatic disease, enterogenous cyanosis, myxedema, intrathoracic tumors, heart disease, especially congenital lesions, and some other conditions. Rarely the condition is unilateral. Little is known of the pathology. Soft parts rather than bone are usually most affected. The condition may appear or disappear in the course of a few weeks. For etiology cyanosis, absorbed toxins and trophic disturbances have been advanced, but for none is there much proof. The paper closes with a bibliography containing 220 titles. It is a *résumé* rather than a contribution of any new fact.

7. Grützner attributes to the muscular layer of the blood vessels a distinct action in addition to their function of controlling the blood supply of the organ to which they bring blood. This latter they do by their contraction or expansion, so diverting blood from or to the organ. Besides they act to maintain blood pressure. In addition Grützner believes the blood vessels have an independent pumping action whereby they materially aid the heart in maintaining the circulation. This action is, of course, far less powerful than the pumping action of the heart. In this sense arteries and also capillaries and veins are to be regarded as accessory hearts sharing in the activity of the great heart.

10. Mendel points out that there is an apparent antagonism between gout and the psychoses, for gout is infrequent among the insane. In very rare cases, however, acute psychoses in the nature of delirium hallucinatorium follow a severe febrile attack of gout. Rarely an acute psychosis takes the place of an attack of gout. Very rarely it seems that an attack of gout will serve to cure a psychosis. However, there is no justification for the term gouty psychosis since the conditions rarely occur together.

12. Rauchfuss considers this subject especially in reference to children. He points out that the sign is demonstrable when fluid reaches the level of the eighth dorsal vertebra. With larger amounts of fluid usually a lateral displacement of the heart and vessels at its base can be made out, sometimes a deviation of the trachea. Frequently the height of the paravertebral triangle is several vertebræ below the level of fluid though often the two correspond. In pneumonia a band of paravertebral dulness can be made out on deep percussion but this differs from the triangle accompanying fluid. The cause of the paravertebral triangle of dulness was studied on the cadaver by filling the pleura with fluid and by displacing the heart by means of a metal sound introduced into the heart through the jugular vein. Rauchfuss found the latter produced a slight triangle of dulness but displacement of the posterior mediastinal organs and crowding over of the distended pleura were the main causes. Displacement of the esophagus was shown by a fluoroscopic examination after the introduction of a filled bougie. Since displacement of the mediastinum is the chief cause the sign only gradually disappears after removal of fluid with the return of the mediastinum to its normal relations.

15. Schreiber reports a case of heart block in a man of forty-four, studied by means of tracings of arterial and venous pulsations, and of intra-esophageal pulsations; also by radioscopic examination. The cause of the condition in this case is unknown as the patient did not die.

16. A symptom complex is described under the term arthrogryposis, a term first used by Niemeyer. It occurred in a child of nine months. After a slight attack of gastro-enteritis which had apparently run its course, there was a rise in temperature accompanied by tonic contractions especially of the extremities. The muscles were tender and the skin over them was swollen. This condition continued several days without intermission and disappeared without leaving any paralysis. There was no increased excitability of nerves and muscles, and the reflexes were not increased. Trousseau's sign was absent. The condition differs from tetany in the fact that the contractions were not intermittent, there was no increased irritability of nerves and muscles and there was no laryngeal spasm. Tintemann suggests myositis as the cause.

18. Waldvogel among other accidents of thoracocentesis considers albuminous expectoration. In his case the expectoration was in several respects similar to the fluid withdrawn from the pleura. He believes that the albuminous fluid of the sputum is derived from the pleural cavity, but not as the result of rupture into the lungs. Instead he thinks the fluid is absorbed from the pleura and resecreted into the bronchi and alveoli. He supports this view by animal experiments. He injected various substances into the pleural cavity of animals, and noted the rapidity with which they disappeared. Moreover, he found that they would appear in the sputum. Violent coughing and cardiac weakness he considers important determining factors. Consequently it is important to control the cough after thoracocentesis, and to stimulate the heart in order to prevent the occurrence of albuminous expectoration, a complication which not infrequently results fatally.

Miscellany.

A MEMORIAL TO DR. JAMES R. CHADWICK.

THE bronze memorial tablet to the late Dr. James R. Chadwick, for thirty years librarian of the Boston Medical Library, has been placed upon the walls of Holmes Hall in the library building on the Fenway. As will be seen from the accompanying cut, the tablet has a plain classical border; a wreath inclosing the medallion portrait modelled some years ago by Brooks (considered by Dr. Chadwick a most excellent likeness) and a Latin inscription. The tablet was modelled and cast by T. F. McGann & Sons Company, of Boston.



At the time when the Medical Library voted to erect this tablet, it also voted to establish a fund to be known as the "Chadwick Book Fund," and authorized the committee to solicit and receive subscriptions for this purpose. The committee feels that such a fund, while of the greatest service to the library, would be a most fitting memorial to one whose individual efforts are largely responsible for the very complete files of the periodical literature of the past. Some subscriptions have already been received for this purpose, but the committee considers the amount on hand as insufficient and urges all those interested to contribute.

Subscriptions of any amount may be sent to the members of the committee, which consists of Drs. W. L. Burrage, C. J. Blake, C. M. Green, J. G. Mumford and E. B. Young.

Correspondence.

PARIS LETTER.

[From our Special Correspondent.]

TREATMENT OF EXCESSIVE ARTERIAL PRESSURE BY HIGH-FREQUENCY CURRENTS.

PARIS, March 19, 1907.

Mr. Editor: Three months ago, one of the best organs of the Paris daily press appeared one morning with a flamboyant article occupying the first two columns of its leading page, the most conspicuous position in the entire paper, wherein was announced that, thanks to the discoveries of two *savants*, whose likenesses were reproduced at the head of the sheet, arteriosclerosis, that curse of the human race and synonym of old age, had at last been conquered, and that physicians would henceforth be in a position to handle it as they liked.

Now the proprietors of the paper in question are not running an institution of charity, exactly; this article must, therefore, have been paid for, and paid for in good round thousands. One of the two *savants* mentioned is a general practitioner little known to the scientific world; but the other is d'Arsonval, professor at the Collège de France! That a man occupying his position should have allowed such a cynical advertisement as this to appear, together with his photograph, in the daily public press, and at the same time that the whole transaction should have aroused no protest on the part of the medical profession at large but have been looked on as a natural occurrence, throws light on the present state of medical deontology in this country.

The article related in vivid terms that most of the ills of advancing years are due to arterial high pressure and vessel hardening; but that now, by means of merely a few *séances* of high-frequency treatment, this pressure can be rapidly reduced to the normal and kept there; that old age and most of its attendant infirmities can henceforth be banished from our preoccupations, etc.; the usual song, which appears destined to crop up at certain regular intervals just about so often, the most celebrated instances during recent years having been the Brown-Séquard injections, Huchard's formic acid and Metchnikoff's fermented milk.

To begin with, a good deal of careless terminology seems to be employed in connection with this subject. The word most commonly used is hypertension, arterial tension, etc. Now as we are dealing with liquids, substances incompressible, I cannot see how with them there can be any question of tension, a term usually applied to compressible substances, such as gases. Pressure is therefore the term that ought to be exclusively used, and not tension.

Again, this article brings up anew the aged controversy as to the relation between high arterial pressure and vessel degeneration, about which so much has been argued in the past, and will, I suppose, continue to be argued in the future, the subject being apparently an inexhaustible one. And yet, the question does not seem so very complicated. Let me, with becoming deference to the learned authorities who have already treated the subject, show in a few words how it appears to me.

The heart and arteries seem to work on the same plan and to the same end as the ordinary steam fire-engine. The heart is the piston, the elasticity of the arterial walls the air chamber and the capillaries the resistant nozzle, — the whole system being devised for the purpose of transforming a quick, intermittent and energetic force into a continuous, even and moderate one. So long as the air-chamber has the requisite dimensions, the machine will work satisfactorily. But suppose that for some reason the cubic area of the air-chamber be gradually and steadily reduced in size, the machine will equally progressively cease to act properly, get out of order and ultimately burst some part of its mechanism on account of the disappearance of the cushion constituted by the air-chamber for the protection of the remainder of the apparatus against the piston's energy. Is not this exactly what happens when in advancing years, whatever may be the cause, the arteries begin to lose their elasticity and harden? Arterial pressure is a corollary of arterial elasticity; the moment the elasticity begins to fall off, pressure follows suit. So that we are inevitably brought to the conclusion which will surprise some people, that the more pronounced the degree of arteriosclerosis, the lower the arterial pressure of the individual.

This does not mean for a moment that any attempt is being made to deny the existence of cases of high pressure, which every one has met in his practice; what is meant is that with them the over-pressure is not a function of arteriosclerosis, but of some other condition. It may be due to a glutinous state of the blood owing to accumulated uric acid, according to Haig; or to capillary spasm, according to Huchard; to nephritis; to circulating toxins, or

to other causes. The type of the advanced case of arteriosclerosis is not the apparently healthy man with voluminous and bounding pulse, but the cadaverous individual with tissue-cachexia, fat all gone, muscles wasted and parchment skin stretched over withered limbs, beneath which can be descried pumping at each stroke of the piston, the nodular, serpentine, pipe-stem arteries, elongated and inextensible, back of which is laboring a distended, hypertrophied and degenerated heart-muscle with intermittent or irregular rhythm. There is no excess of pressure here, far from it. Besides, how could we with our apparatus, based on vessel compressibility, measure such a coefficient with a hardened artery? What has been taken for excessive pressure in such cases is the thrust against the finger that each heart-beat necessarily gives through the right artery, which, no longer able now to dilate transversely through loss of its elasticity, expresses the impulse of the central motor by a longitudinal movement of its substance now stretched out far beyond its original length. Excessive pressure, then, and arteriosclerosis are two distinct things, not to be confounded; and on this particular the writer of this newspaper article has conspicuously wandered afield.

No sooner had the article referred to seen the light than Huchard, a man who has written a great deal on the heart, girded on his armor and proceeded to do its tenets battle. And for the last three months, before the learned societies, *Académie de Médecine, Société de Thérapeutique*, etc., we have had an avalanche of papers from him on arterial high pressure and its treatment. Huchard is a man who all his life has ridden but three or four horses, but these poor jades he has pushed well-nigh to death. It would have been advantageous to him if early in his career he had taken to heart the caution contained in the lines of your immortal philosopher, Hosea Biglow, which with the alteration of one word read as follows:

"A ginooine doctor should be on his guard,
Ef he *must* hev beliefs, nut to b'lieve 'em tu hard."

Well, one of these favorite war horses of Huchard's has always been this same arterial high pressure and its treatment, his theory, in a word, being that arteriosclerosis is produced by an antecedent phase of high pressure, due to capillary spasm produced by toxins. Now after having had the field pretty much to himself for years in this department, here suddenly arises before him a younger competitor in this special branch, and a competitor with the pretension of *curing* the disorder by means of a few *séances* of electricity, he, Huchard, having spent his life in demonstrating the condition to be everything that is chronic, constitutional and incurable. Hence this deluge of papers, and the general outburst of choler in the Huchard camp.

It is not easy to ascertain just where the exact truth lies as regards this new treatment. Not being an electrician myself I cannot speak from experience; and when you apply to others you are immediately confronted with so many rivalries, and the different cliques into which professional men are divided here, which defend their own adherent, "right or wrong," and conversely will not hear of any good whatever coming out of a competing band, that the goddess Truth seems to have descended so far down into her well this time as to be no longer discernible to the naked eye.

The subject is not exactly a new one. Moutier, the leader of the high pressure crowd, has worked at it for many years, but not to his full satisfaction until 1902; since that date, however, he considers that his method and apparatus have been fully perfected and that his results can be judged.

He never claimed to cure arteriosclerosis directly as a lesion; what he does claim is to be able to reduce excess of pressure with perfect ease, and that this reduction is to a certain degree a definite one. His apparatus is thus described: a Ruhmkorff coil giving a 25 cm. spark, fitted with a Contremoulins-Gaiffe interrupter, connected with the city cables by a rheostat; a d'Arsonval petroleum condenser, and a large solenoid cage with continuous wire and no door, the hoops being hoisted up to let the patient in. The treatment is supposed to be given at about 500,000 interruptions per second. By means of high-frequency currents of high tension applied in a solenoid cage in *séances* of five minutes each three times a week, he claims to reduce high pressure and thereby to ameliorate many symptoms — vertigo, tinnitus, palpitations, irregularities, etc,— connected with developing arteriosclerosis, and also probably to retard the said development itself by removal of pressure. In parenthesis an important point is not to apply this treatment to tubercular patients, as with them it may give rise to acute accidents. Moutier claims to have been obtaining results such as these for fully five years now; there would, therefore, appear to be grounds for believing that with that length of experience back of him his thesis would by this time either have been triumphantly demonstrated, or have fallen ignominiously to the ground.

And yet, what do we find? In the discussions that took place on the occasion of Huchard's recent communications to the various medical bodies, several points appear to have been clearly shown. *First:* That the generality of authorities here do not at all accept Huchard's theory that arteriosclerosis is preceded and produced by a long antecedent period of high pressure due to capillary spasm. *Second:* That clinical practitioners in general place no faith in the lasting benefit of high-frequency currents on high pressure; the most that they will grant, and this in a questioning and grudging spirit, is that they reduce pressure for a few moments, hours or days. Among these men are Albert Robin, Huchard, Widal, Vaquez, etc. To them, however, Moutier's answer is only too easy: that they do not know anything about the method themselves, and that those who have tried it on their behalf have had neither the apparatus nor the experience necessary for the purpose; that his results for five years are there to speak for themselves, *facts*, that cannot be demolished by mere beliefs.

Moutier's ideas, however, have received a more serious check, possibly, in the opinions of them expressed by his colleagues in electricity. This opposition is more difficult for him to overcome, for he is here confronted with his peers, and in some instances with men of greater experience in this specialty than himself.

Naturally these men, both for themselves and at the request of general practitioners and heart specialists, have tested the method, and a number of opinions on the subject emanating from them have appeared in print. I think that it is not unfair to say that even Moutier will acknowledge that the general consensus of the electric fraternity is adverse to him. Some of them say that they have obtained no results whatever from high frequency in arterial high pressure! Others that they get a few, but that these have not proved lasting. A few only substantiate more or less Moutier's contentions.

So there the question stands for the time being. It should be remarked in closing, and without any *animus* being implied, that Moutier is a relatively unknown man in the scientific world. This is no reason why he should not make a discovery just as well as any one else; still, such an important affair as would be this one should it turn out to be true, coming from an unknown source, is naturally looked at with greater suspicion than if it came from some acknowledged authority. D'Arsonval, being a laboratory man, has taken no part in the clinical side of this question.

Time then alone will settle the matter, and show us where the truth lies. Such wide attention has now been drawn to the subject in France, owing to Huchard's communications to the various societies, that every electrician in the country will now be certain to test the method for himself. For little by little the electric specialists over here are putting forward the claim to be the sole path to salvation in *all* diseases! But about this I hope to have occasion to speak at greater length in some future letter.

On general principles only, Moutier's claims appear absolutely untenable. If there was one type of incurable chronicity in medical matters it was the condition of the vessels in advancing years. And now to come forward and pretend that all this accumulation of personal and hereditary sins of omission and commission can be set straight by a few *séances* of high frequency, is simply to claim to have discovered an elixir of longevity, and I am afraid that the times are not such as that — *just yet*.

"Spectator."

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 23, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,571	465	Quincy	12	5
Chicago	—	—	Waltham	5	—
Philadelphia	—	—	Gloucester	11	1
St. Louis	—	—	Pittsfield	—	—
Baltimore	244	62	Brookline	9	3
Cleveland	—	—	North Adams	9	0
Buffalo	—	—	Chicopee	13	8
Pittsburg	—	—	Northampton	8	1
Cincinnati	—	—	Medford	7	—
Milwaukee	—	—	Beverly	4	1
Washington	—	—	Hyde Park	5	—
Providence	102	28	Newburyport	—	—
Boston	231	54	Leominster	2	2
Worcester	56	14	Melrose	2	0
Fall River	27	7	Woburn	3	—
Cambridge	33	11	Marlborough	4	3
Lowell	44	10	Westfield	5	—
Lynn	36	7	Peabody	—	—
New Bedford	29	10	Revere	2	—
Springfield	22	6	Clinton	4	1
Lawrence	44	15	Attleboro	5	0
Somerville	20	6	Adams	6	3
Holyoke	17	10	Gardner	—	—
Brockton	15	2	Milford	—	—
Malden	7	—	Weymouth	3	1
Salem	9	5	Framingham	5	—
Chelsea	10	2	Watertown	2	0
Haverhill	11	1	Plymouth	—	—
Newton	8	2	Southbridge	4	1
Fitchburg	—	—	Wakefield	—	—
Taunton	7	1	Webster	—	—
Everett	3	3			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MARCH 30, 1907.

W. C. FARWELL, assistant surgeon. Detached from the "Worden" April 15, and ordered to the "Lancaster."

L. H. SCHWERIN, acting assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the "Worden."

A. HAMMAR, pharmacist. Ordered to the Naval Hospital, New Fort Lyon, Col., for such duty as he may be assigned.

J. H. HOLLOWAY, passed assistant surgeon. Detached from duty with Naval Recruiting Party No. 4 and ordered to the "Indiana."

C. E. RYDER, passed assistant surgeon. Detached from duty at Naval Recruiting Station, Omaha, Neb., and ordered to the "Vermont."

C. ST.J. BUTLER, passed assistant surgeon. Detached from duty at the Naval Hospital, San Juan, P. R., and ordered to attend course of instruction at Naval Medical School, Washington, D. C.

E. M. BROWN, passed assistant surgeon. Detached from duty under the department of government and sanitation, Canal Zone, Isthmus of Panama, and ordered to the Bureau of Medicine and Surgery, Navy Department, for special duty.

F. M. BOGAN, passed assistant surgeon. Detached from duty at the Naval Recruiting Station, Baltimore, Md., and ordered to attend course of instruction at the Naval Medical School, Washington, D. C.

H. A. MAY, assistant surgeon. Detached from the "Indiana" and ordered home to wait orders.

J. L. BELKNAP, assistant surgeon. Detached from duty with marines in Cuba, and ordered to the "Kentucky."

W. F. SCHALLER, assistant surgeon. Detached from the Naval Medical School, Washington, D. C., April 3, and ordered to the "Brooklyn."

H. L. BROWN, assistant surgeon. Detached from duty with Naval Recruiting party No. 3, and ordered to attend course of instruction at the Naval Medical School, Washington, D. C.

F. M. SHOOK, assistant surgeon. Detached from duty at the Naval Hospital, Mare Island, Cal., and ordered to duty under the Department of Government and Sanitation, Canal Zone, Isthmus of Panama.

F. M. MUNSON, assistant surgeon. Detached from Naval Proving Ground, Indian Head, Md., ordered to attend course of instruction at Naval Medical School, Washington, D. C.

F. D. CHAPPELEAR, acting assistant surgeon. Detached from Naval Medical School, Washington, D. C., ordered to Naval Hospital, Pensacola, Fla.

D. H. CASTO, acting assistant surgeon. Detached from Naval Medical School, Washington, D. C., ordered to duty at Naval Recruiting Station, Baltimore, Md.

E. E. CURTIS, acting assistant surgeon. Detached from Naval Medical School, Washington, D. C., ordered to duty at Naval Hospital, Norfolk.

A. MCK. JONES, acting assistant surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to duty with recruiting party No. 4.

RESIGNATION.

DR. ARTHUR T. CABOT has resigned from the position of visiting surgeon to the Massachusetts General Hospital.

RECENT DEATHS.

DR. ROBERT STUART MACGREGOR, of New York, died from pneumonia on March 23, in the thirty-ninth year of his age. He was of Scotch descent and was a native of St. Andrews, Province of Quebec, Canada. He was graduated from the medical department of the University of New York in 1897, and had spent his professional life in New York City.

DR. OTTO ALBERT WEIGAND, of Jersey City, N. J., died from pulmonary tuberculosis on March 24. He was thirty-eight years of age, and was graduated from the College of Physicians and Surgeons, New York, in 1890.

DR. GEORGE WARREN BARTOW, of Three Bridges, Hunterdon County, N. J., died on March 28, at the age of sixty-three years. When a young man he served in the Civil War, in the Fifteenth Regiment, New Jersey Volunteers, and was wounded at the battle of Petersburg. At the close of the war he studied medicine, and was graduated from the College of Physicians and Surgeons, New York, in 1872. He had practised in the village of Three Bridges for thirty-four years.

DR. REED B. BONTECOU, of Troy, N. Y., died at an advanced age on March 28. He was graduated from the Medical School at Castleton, Vt., in 1847. He was one of the well-known field surgeons of the Civil War, throughout which he served in the medical corps of the army, and for faithful and valued services he was brevetted lieutenant-colonel and colonel of volunteers. In 1863 he was placed in charge of the Haverwood United States General Hospital at Washington, D. C. At the time of his death he was consulting physician and surgeon to the Marshall Infirmary of Troy.

BOOKS AND PAMPHLETS RECEIVED.

Students' Aid Series. Aids to Dental Surgery. By Arthur S. Underwood, M.R.C.S., L.D.S. Eng., and Douglas Gabel, M.R.C.S., L.R.C.P. Lond., L.D.S. Eng. Second edition. New York: William Wood & Co. 1907.

Histological Observations on Sleeping Sickness and Other Trypanosome Infections. By F. W. Mott, M.D. F.R.S. (From the Pathological Laboratory of the London County Asylums). New York: William Wood & Co. 1907.

The Nursling. The Feeding and Hygiene of Premature and Full-Term Infants. By Pierre Budin. Authorised Translation by William J. Maloney, M.B., Ch.B. With an Introduction by Sir Alexander R. Simpson, M.D., LL.D., D.Sc. Illustrated. London: The Caxton Publishing Co. 1907.

Green's Encyclopedia and Dictionary of Medicine. Vol. III. Chicago: W. T. Keener & Co. 1907.

Remarks on the Modern Treatment of the Toxemia of Pregnancy. By John F. Winn, M.D. Reprint.

Joint Diseases, Especially Those of Children. By DeForest Willard, M.D. Reprint.

Psychology Applied to Medicine. Introductory Studies. By David W. Wells, M.D. Illustrated. Philadelphia: F. A. Davis Co. 1907.

Principles and Application of Local Treatment in Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D. New York: Rebman Co. 1907.

Surgery of Genito-Urinary Organs. By J. W. S. Gouley, M.D. New York: Rebman Co. 1907.

Dining and Its Amenities. By a Lover of Good Cheer. New York: Rebman Co. 1907.

Anatomical Terminology with Special Reference to the [BNA]. By Lewellys F. Barker, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Manual and Instrumental Dilatation of the Pregnant and Parturient Cervix. By J. Clifton Edgar, M.D. Reprint.

The American Society of Tropical Medicine. Papers Read before the Society and Published under Its Auspices. Vol. 2, 1905–1907.

Original Articles.

THE BIOGRAPHY OF MICHEL SERVETUS, THE DISCOVERER OF THE PULMONARY CIRCULATION.

BY CHARLES GREENE CUMSTON, M.D., BOSTON,
Member of the Medical Historical Society of France, etc.

TO WHICH IS APPENDED THE TEXT OF THAT PASSAGE OF HIS WORK RELATING TO THIS DISCOVERY, FOLLOWED BY AN ENGLISH TRANSLATION OF THE SAME AND NOTES.

MICHEL SERVETUS, in Spanish Micael Serveto, was born at Villanueva (Aragon) in 1509. He left Spain at the age of nineteen years. His father, fearing that his independent character and his open opposition against scholastic theology might bring him into the notice of the Inquisition, sent him to the University of Toulouse to study law. Here he became intimate with some young men who were preoccupied with the new religious ideas of Luther, and after a few months of study, which was more given up to Biblical than judicial subjects, he started for Germany in order to enter into relationship with the chiefs of the Reformation. Received in the first place with the greatest favor by Œcolampadius at Bâle, he was not long in alarming the reformer by his antitrinitarian doctrines. For the same motive he was repulsed at Strasburg by Bucer and Capito and, like the former, Zwingli complained of the "wicked Spaniard."

Far from giving into the disapprobation of the official chiefs of the Reformation, Servetus placed the matter before public opinion. In 1531 he published his celebrated treatise at Haguenau, entitled "*De Trinitatis Erroribus Libri VII.*" A few months later he developed his ideas in a second publication entitled "*Dialogorum de Trinitate Libri II de Justitia Christi Capitula Quatuor.*" This treatise on the errors of the Trinity, or, more correctly speaking, the variations of the Trinity, and his dialogues on the same subject, exposed, in a manner far too obscure for the present time, but which was quite sufficiently so for his contemporaries, the philosophical and theological system of Servetus. The success of his writings, without being enormous, was, however, quite sufficient to scandalize and cause uneasiness among theologians.

Suddenly, either from prudence or from capriciousness, Servetus left Germany, bidding leave to theology, and came to Paris to study medicine under the two most illustrious masters of the time, Sylvius and Fernel. After brilliant and rapid studies he took the bonnet of doctor and professed for some time at Paris. As a physician he acquired great celebrity and was one of the most profound *savants* of the century. The discovery of the pulmonary circulation and the part played by the lung in the modifications of the blood is certainly his finest bit of work. He also mentions the part played by the cardiac valves in diastole and systole, which does not take place during intra-uterine life, but commences as soon as the child is born. In these studies, as in the questions of theology, Servetus is himself, that is to say, giving evidence of an exuberant, unequal and orderless mind, quite as profoundly sagacious on certain occasions as it was chimerical upon others, and always greatly attached to his own opinions. Very little desire to respect tradition is shown; for example, in his treatise on syrups (*siruporum universa ratio*) he adds these most significant words: "*Ad Galeni censuram diligenter exposita.*" This work was a blow directed against the Faculty and proposed in its pages to substitute a pretended superior method to the old medical errors. The dispute became so intense that it necessitated the interference of Parliament.

In the midst of these scientific struggles which it would seem might have absorbed all the thoughts of young Villeneuve (the name which Servetus had adopted in France), he nevertheless secretly returned to his favorite passion. He wrote to Calvin in order to obtain a conference, or discussion (*disputatio*), on theological questions. According to Théodore de Bèze, it would appear that although the place and day for the conference had been fixed, Servetus did not appear, but it may at any rate be supposed that it was not from any fear on his part of appearing before the great reformed theologian. Pressed by his needs he went to Lyons in 1534 and entered as a proofreader in a printer's, where he published, with notes by himself, the "Géography of Ptolémy," a Bible also with notes, arguments for the theological writings of St. Thomas and some other compilations. He returned to Paris in 1537 and obtained a decision from Parliament, which put an end to the law procedures directed against him by the Faculty of Medicine. In 1538 he established himself as a physician at Charlieu, a town near Lyons, and finally in 1541 he had the good fortune to meet at the latter city Pierre Paulmier, Archbishop of Vienne (Dauphiné), a kindly man, most liberal and favorable to *savants*. In order to free Servetus from his persecutions, the Archbishop offered him the hospitality of his own palace as his physician. In this safe asylum, Servetus was able to follow his profession and to continue to work for the publishers. Sought for by the first families of the province, greatly esteemed as a physician, honored as a friend of the Archbishop, beloved for his agreeable and kindly nature, he would have been able to pass many happy years at Vienne, if his restless disposition and his passion for militating theology had not again thrown him into religious discussions. His ardent desire of going himself to the very foundations of these then burning questions drove him to undertake a more complete and logical reformation than that given forth by Luther and Calvin, the reconstitution of pure Christianism, that is to say, what was, according to him, the primary and authentic religion of Christ.

Confident in what he believed to be the truth, he did not suspect that it would become too evident to everybody, and he had no greater

desire than that of proving it to the chief of the French reformation, namely, Calvin. Placed in relationship with the latter by Frellon, a publisher at Lyons, he wrote him, sending him some manuscripts, in which Calvin discovered quite a different affair than a restoration of Christianism, because he there saw a very characteristic pantheism.

Servetus exposed his views to Calvin, treating him on an equal if not his inferior, and this arrogance contributed considerably to irritate the reformer, who broke off all relation with his adversary in February, 1546. At this time (Feb. 13, 1546), Calvin wrote to Farel, in which letter very sinister words are to be found, a paragraph of which I quote: "Servetus has sent me an enormous volume of his reveries, at the same time advising me with fabulous brazenness that I would therein find unheard-of marvels. He offers to come here [at Geneva] if agreeable to me, but I do not wish to give my word, because, if he came I would not suffer him to leave alive if my authority has any power."

Abel Popin, a preacher at Geneva, and Pierre Viret, a reformer at Lausanne, to whom Servetus again addressed himself, also rejected him, and finally he was obliged to try alone the radical reform to which mission he thought he had been called. After having been refused by a publisher at Bâle, Servetus finally overcame the hesitations of two printers at Vienne, who at last consented to occupy themselves with his work, and it was then that the famous "*Christianismi Restitutio*" appeared.

This work was less an exposition of a limited heresy than a complete plan of reform; if it had become circulated its effect might have been immense and Servetus would not have been considered as a simple anti-trinitarian, but rather as a reformer. However, the breath of ardent pantheism, which animated the entire work, shocked Christians of the sixteenth century, more especially because this pantheism was applied to transform or, rather, overthrow orthodox christology.

The work had hardly been issued from the press and had not as yet been put on sale, when a copy arrived at Geneva, and it was this copy which, denounced to the Catholic authorities in France by a Protestant hand of Geneva, resulted in Servetus' condemnation. Was Calvin implicated in this denunciation? An attempt has been made to deny this by Guyzot, Paul Henry and Rilliet de Candolle; Eugène Rambot and some other Swiss writers have left the question in doubt, but Galiffe, of Geneva, and Emile Saisset in his articles which appeared in the *Revue des Deux Mondes* do not hesitate to admit Calvin's culpability, and here are the facts which have been collected to prove this.

There was at Geneva, among the French refugees who formed Calvin's party, a man who came from Lyons, whose name was Guillaume Trie or de Trie, "who, from religious zeal and also on account of some bad affairs," was expatriated and had embraced the reformed religion. He kept up a constant correspondence with one of his relatives, Antoine Arneys by name, who was established at Lyons and an ardent Catholic, who saw with the greatest displeasure a member of his family engaged in heresy, and he endeavored with all his might to bring him back in the clutches of the Church. It was these two men that Calvin used. He alone had in his hands the work which had as yet not been placed on sale and which bore no signature, he alone knowing the author, and sometime afterwards Antoine Arneys denounced the book at the Inquisition of Lyons, giving the name of the author and accompanying the denunciation with the index and the first four pages of the "Restitution of Christianism."

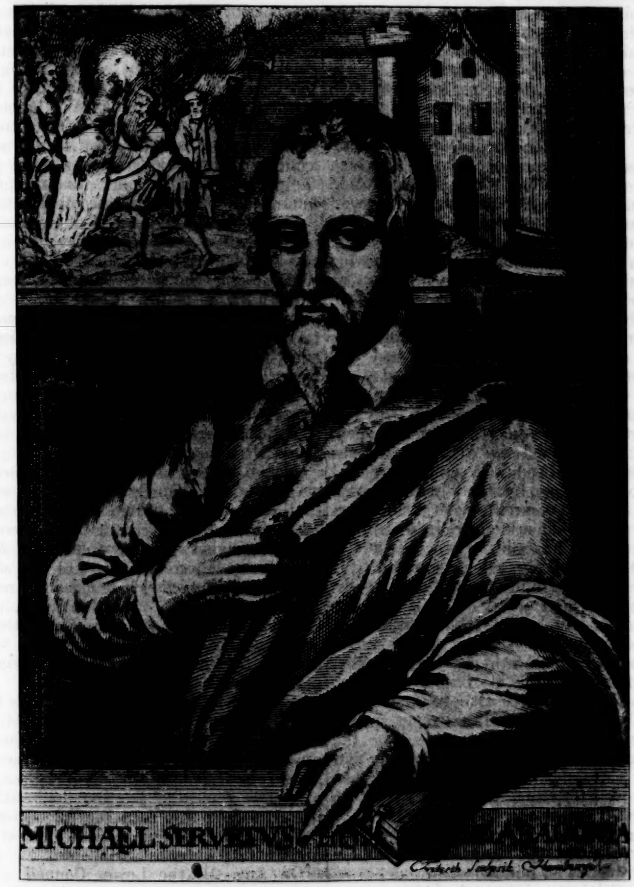
At this time Lyons had Cardinal de Tournon as governor and as Archbishop, a man celebrated by his ardent zeal against heretics. In order to back up his views he had requested from Rome an inquisitor by the name of Father Mathieu Ory, who took the title of penitentiary of the Pope and general inquisitor of the kingdom of France and of all the Gauls. The inquisitor and cardinal enjoined upon the Lieutenant-General of the King in Dauphiné, Monsieur de Maugiron, to arrest Michel Servetus. The latter, being immediately requested to appear before the Lieutenant-General, tried to free himself of the accusation and requested that his house should be searched; this was done and nothing was found. The same unsuccessful result occurred at Arnollet's printing house and, although all the workmen were closely questioned, not one of them admitted that they had worked on the book, two or three pages of which were shown to them.

From the want of proof the inquest aborted, but the inquisitors did not renounce the hunt after their prey. Mathieu Ory dictated a letter to Arneys which was destined for Guillaume Trie, a letter in which he ordered him to set aside all generalities and to send to Lyons the entire treatise instead of the first four pages. Trie did not, however, send the book, which in reality would have done no good, because Servetus and his printers could always deny any knowledge of it, for it bore no name indicating the author, the printer nor the town where it was published. He did better than this; he sent the letters written by Servetus to Calvin, in which were to be found the same heretical propositions, and he replied to his friend whom he knew to be the confident of the inquisitors: "I will place in your hands, in order to convince you, a couple of dozen of written pieces from the person of whom it is question, in which a portion of his heresies is contained. If the printed book was placed before him he might be able to deny his connection with it, a thing he cannot do when his own handwriting is shown. From this the persons to whom you refer, having the affair completely proven, will have no excuse if they continue to dissimulate or if they defer attending to it. . . . But I must confess one thing to you, namely, that I had considerable difficulty to obtain what I

send you from Calvin; not that he is not desirous of having such fearful blasphemies repressed, but because it appears to him that his duty is, since he does not hold the sword of justice, to rather convince the heresies by doctrine than to chase them down by such means; but I influenced him so much, remonstrating the reproach of lightness on his part, which might be brought up against him if he did not aid me, that finally he agreed to accord me that which you will see."

It is consequently positive that it was Calvin who furnished the letters without which Servetus could not have been convicted of being the author of the "*Restitutio Christianismi*." Now, this giving them over to Arneys simply meant that it was to hand its author over to the executioner, as has well been said by Saisset when he writes: "The hypocrisy of Calvin making it appear that he was obliged to give up by force that which he was burning to deliver, still more adds to the odiousness of his conduct, but at the same time it gave him an opportunity of hiding his identity in the matter."

During the developments of his trial, Servetus, having accused him of being an instigator and the true author of his arrest at Vienne, Calvin replied: "There is no necessity of insisting any more lengthily in trying to deal with such frivolous calumny, which will fall low when I shall have said in a word that there is nothing in it." Calvin's partisans in this affair, those who believe that he had absolutely nothing to do with the condemning of Servetus at Vienne, found their idea on this affirmation and which they say would be temerity to incriminate its veracity.



The envoy of Guillaume Trie, when he arrived at his destination, was Servetus' loss, and in order not to alarm him he was begged to come hastily to give his medical care to some sick prisoners in the city prison. Servetus immediately fell into the trap without any suspicion and was thus easily arrested. Interrogatories followed and were carried out with great craftiness. In the first place, he was shown a few quite insignificant lines written by him, and he admitted that it was his handwriting, hoping that he would be pardoned for the slight heresies which they contained, but the next day he was shown the entire package of his letters written to Calvin which he could not disown.

After several days of imprisonment Servetus escaped by way of the garden, probably the result of the interference of some of the high personages of the locality, whose physician and friend he had been. The procedure, however, continued and finally ended by a sentence of death (Note 1) from which Servetus escaped only by leaving French territory after having wandered on the frontier for three months.

Upon leaving France he knew not where to go. He, in the first place, thought of Spain and then Germany, and finally decided to leave for Italy, where the advanced religious ideas had less likelihood of being so soon prosecuted than elsewhere. Unfortunately, he set out by way of Switzerland, arriving at Geneva on July 17, 1553. For three weeks he remained unknown, but was finally arrested on Aug. 13. It has been said that he went to hear a sermon preached by Calvin, forced to do so by a very rash curiosity. Whether or not this occurred because there was some delay for his embarking on Lake Léman, as Servetus himself has said, or whether it was with the intention of provoking a quarrel with Calvin, which decided him to come and remain at Geneva at the peril of his life, is a problem which probably will never be solved. It is probable, however, that this is not a simple matter of chance; and it is likely that Servetus, who had not profited by his imprisonment at Lyons, wished to come to Geneva and brave Calvin even in his stronghold, and engage in a public discussion with him. At this time the reformer had been vigorously handled and defeated by certain of his adversaries, so that his position was tottering. Servetus wished to profit by this favorable occasion, but, on the contrary, Calvin became stronger at the latter's expense, for the simple reason that Servetus' pile caused terror in all minds.

As soon as Calvin was informed of his presence in Geneva, he neglected nothing in order to carry out what he had already announced seven years previously, and he states in the work, which he published a few months after the last act of the drama, that he "would in no way deny that he had been made prisoner by my own instigation."

The laws of Geneva were framed in such a way that whoever accused a man of no matter what crime should be placed in prison with him so that he might be punished by the same sentence that the accusation would have caused the accused, if he had in any way calumniated him. Calvin declared that his time was far too precious to allow him to fulfill this formality so that his Secretary, Nicolas Delafontaine, took his place. The procedure commenced immediately and was conducted regularly for the two following months. Calvin drew up an extract of the contents of Servetus' books and even his manuscripts, to serve as a guide to the interrogation of the prisoner, as well as to bring out the principal points. Servetus vainly demanded that the trial should be public, and after the second hearing, Berthelier, son of the heroic liberator of Geneva and the chief of the anti-Calvinistic party, appears to have tried to defend Servetus against minister Colladon, who had just taken the place of Delafontaine. The next day Calvin himself entered directly into the arena.

In order to give an idea of the details of the trial which were ridiculously atrocious, where the life of a man depended on the most misty subtilties of scholastics, let it be recalled that Servetus was, among other things, accused of impiety for having translated Ptolemy's geography, a work in which the Holy Land is, contrary to what is said in the Bible, presented as a sterile country. Calvin says: "The wretched dog was thus thrown down by such evident reasons that he only wiped his muzzle, saying, 'Pass that over, gentlemen, there is no evil there.'"

At the bottom of all Servetus' heresies there was only one, namely, pantheism, and it was in this way that Calvin snatched the decisive admission from the courageous sincerity of Servetus. Calvin writes as follows: "As he pretended that all creatures are of God's substance and full of God, myself being anchored by such a heavy absurdity, replied: 'How, poor man, if somebody struck this bread with the foot and that he says he struck thine God, would you not be horrified with having subjected the majesty of God to opprobrium?' Then he replied: 'I in no way doubt that this bench and table and everything else that could be shown is God's substance.' In reply when it was objected that according to his idea the devil should be substantially God, he laughed and resolutely replied: 'Do you doubt it?' As to myself I hold this as a general maxim, but all things are a part and portion of God and that all Nature is his substantial spirit."

On Aug. 21, the Lower Council, considering "the case important to entire Christianity," removed the trial from the lower courts. It decided that, in the first place, information should be sought for at Vienne and, that secondly, the opinion of the other Swiss churches should be asked. From this resulted other theological interrogatories, but so vague that one can hardly discover the sense of the distinctions made by the theologians of the epoch. Servetus replied with a great presence of mind, without trying to hurt the feelings of his judges, but in every

instance he maintained everything which related to his essential convictions.

It was then understood that it would be altogether too monstrous a thing to condemn a man for his beliefs, and his enemies then attempted to insinuate that he had tried to disturb the city and Church of Geneva and he was called the "disturber of heresies." The reply from Vienne soon arrived, relating the condemning of Servetus and demanded that he should be returned into the hands of the French authorities. He, however, was retained at Geneva, as the people of the latter town were desirous of having the privilege of giving a great example of Christianity, flattering themselves to thus prove the rigid purity of their doctrine.

A serious incident for a time seemed to indicate that Servetus might be saved; this was the quarrel which Calvin had with Berthelier and the Council relating to the law of excommunication. The Council was partly composed of Calvinists, partly by Calvin's enemies and finally by neutral and undecided magistrates, so that the fluctuations in their feelings might be favorable to Servetus' cause. It was during one of these moments of defiance respecting Calvin that it was decided to leave aside his accusation and ask advice from other Swiss churches. Calvin struggled with his usual energy and, resorting to the pulpit, he there profited by the occasion to thunder against Berthelier and others and finally against Servetus himself, whom he pictured under the most fearful traits to his auditors. At the same time he wrote to the churches which had been consulted, begging them to reply favorably; this request was all the more necessary, because in a preceding affair, namely that of Bolsec, the churches of Berne, Bâle and so forth, had advised moderation and had condemned the use of force. This time it was no longer the same. Without pronouncing themselves in favor of the sentence of death, the churches recognized Servetus' culpability, the atrocities of his heresies and the danger of impunity. While waiting the arrival of this decision the Council authorized Servetus to uphold a written discussion against Calvin. One of the most remarkable passages of the memoir of the accused, confirmed by other extracts from his works, is that where he advises, in principle, that one should not persecute and especially not put to death any man for his theological opinions, although they might be erroneous, all this being the proclamation of the principal of the liberty of conscience.

While in prison Servetus was treated with the greatest cruelty. Not content with having him insulted and attacked by his friends during the interrogatories, to treat him as an ass, pig, etc., Calvin wished him to taste, in a filthy cell, the anticipation of the supplicant. The unfortunate Servetus wrote to the members of the Council as follows: "He wishes me to decay here; lice eat me alive, my footwear is torn and I have no change of dress. Three weeks ago I demanded to have an audience, but was unable to obtain one. The cold greatly torments me on account of my colics and hernia, which results in other troubles that I am ashamed to write you about. This is very great cruelty. For the love of God change the condition of affairs, either from pity or duty."

Upon reading this request the Council wished to order some change of linen sent to Servetus, but Calvin strongly opposed it. The former also asked to have a lawyer sent him, but Calvin replied that it was quite useless; in point of fact he had already been judged and condemned.

Finally the letters from the churches of Berne, Bâle, Zurich and Schaffhausen arrived and put an end to the Council's hesitations. Calvin and his followers had completely used up both possible and impossible questions. The most minute details had been gone into; they had even questioned why he had been able to contain himself for so long a time without marrying on account of his age, and other questions which could only be expressed in Latin.

There was nothing left but to announce the sentence, which was already amply prepared by this voluminous mass of derogatory evidence. It was pronounced at the *séance* of Thursday, Oct. 25, 1553. The few friends belonging to Servetus in the Council were kept away, and Calvin on this occasion only allowed his creatures to come, as well as those who, during the trial, had given evidence of animosity towards the accused. According to the sentence Servetus was convicted for having "proffered blasphemy of the most scandalous nature against the saintly and undivided Trinity, persevering in his false error and infecting several countries with them; that he had secretly had printed another book at Vienne in Dauphiné filled with the same horrible heresies and execrable blasphemy; to have called the Trinity a Cerberus or a monster with three heads; to have upheld that the baptism of little children was merely devilishness or witchcraft; the whole being a cruel onslaught, perdition and ruin of several poor souls." This curious document ends as follows: "It has been shown to us that thou, Servetus, hast for a long time put forward a false and fully heretical doctrine and this, placing aside all remonstrances and corrections, to have had a malicious and perverse obstinacy, perseveringly scattered and divulged until the printing of public books against God, the Father, the Son and the Holy Ghost, in short against the true foundations of the Christian religion, and by those means thou hast tried to cause a division and disturbance in the Church of God, by which means many souls might have been lost and ruined, a thing horrible and fearful, scandalous and infecting; thou hast had little shame nor horror to raise thyself against the Divine Majesty and the Holy Trinity, as well as to have greatly endeavored and obstinately employed in infecting the world with thine heresies and stinking heretical poison, the case and crime of heresy most shameful and detestable, meriting a serious corporal punishment. To these and other just causes,

we, being desirous to purge the Church of God from such infection and to remove from it such a putrified member; having had a good participation of the Council with our citizens, and having invoked the name of God in order to substantiate the judgment, . . . having God and his Holy Scriptures before our eyes, we say in the name of the Father, the Son and the Holy Ghost that this is our final sentence which we here give in writing, thou, Michel Servetus, we condemn to be tied and led to Champel and there to be attached to the stake and burned alive with thine book, both written with thine hand and printed, until thine body is reduced to cinders; and thus shall finish thine days in order to give an example to others who might wish to commit similar acts." (Note 2.)

This judgment rendered by ignorant laymen against a theologian accused of metaphysical errors would be of the greatest ridiculousness if it were not a monument of cruel and barbarous iniquity. Servetus was executed on the next day, Oct. 27. Some few protestations were raised among the people and even in the Council. An Italian lawyer, by name Gribaldo, nearly paid with his life this courageous act in which a small number of bold men joined. But these few and weak voices were unable to save the unfortunate prisoner. He might, perhaps, have been able to escape death had he wished to, because all that was necessary for him to do was to retract what he had said, as Bolsec had done before, and as was done five years later by Valentine Gentilis. Servetus had more courage, and in spite of all that Calvin has written to blacken the last few hours of his victim, although he gave vent to cries of distress when his sentence was announced and when he saw the stake, he nevertheless persisted in his courageous refusal of any retraction. Nothing was neglected, however, to force one from his lips. Calvin went to the prison with two councillors and begged him to repent. Servetus in his nobleness told the former that he had pardoned him and even asked that he might be pardoned for the violent language which he had emitted against his accuser. Shortly afterwards Farel, the reformer of Neuchâtel, arrived in order to assist the unfortunate prisoner during his last moments. Even to the foot of the pile the theologians remained inflexible and pitiless. Farel demanded Servetus to admit his errors and his lies, to which Servetus replied: "I am perhaps mistaken, but I have neither lied nor sinned." Farel insisted and begged him to ask those present to pray for him, to which Servetus consented with an humble and true piety. But Farel wanted him to retract; he threatened Servetus that he would not follow him to the pile if he persisted to uphold his innocence. Servetus remained silent. The procession having crossed through the city left through the gates of Saint Antoine and reached the plateau of Champel. Here Servetus cried: "Oh! Jesus, Son of Eternal God, have pity on me." The theological subtilty reappeared in this supreme moment; they tried to force him to say "Eternal Son of God instead of Son of God Eternal," but he persisted in refusing. Then, addressing the people, Farel cried: "Behold the strength possessed by Satan when he possesses a soul! This man was very *savant*, and he might have been able to walk in the right road, but Satan has possessed him; be careful that the same thing does not happen to you."

Finally Servetus was tied by the executioner to a post placed on the pile; on his head had been placed a crown of heather saturated with sulphur and the "*Restitutio Christianismi*" was tied on his thigh. The stake was composed of green branches and consequently ignited slowly, but the people present threw dead wood upon it in order to shorten the suffering of the victim; after having given vent to a piercing cry and reciting a prayer to the end, he died.

Tradition represents Calvin hidden behind a window in order to satisfy his eyes by the tortures of Servetus, a distinct and symbolic image of the passionate and cruel persecution of his victim. Servetus' death did not put an end to his persecution, for a few months later Calvin published a book in which he exposed the abominable errors of Servetus and covered his memory with ignominious and mean calumny.

On account of the rarity of this work, there being only three (Note 3) copies extant, I have not been able to consult the original, but the text has been correctly reproduced in a work by Dutens entitled "*Des Origines des Découvertes attribuées aux modernes*," Paris, 1776. The author of this book received an original copy from Abbé Rive who was the librarian of the *Duc de la Vallière*, and sent it upon the request of the former. Following this I will give the English translation, but must crave pardon for the elegance of the English, because this has been sacrificed in order to give the author's correct idea.

"Ut vero totam animae et spiritus rationem habeas, lector, divinam hinc philosophiam adjungam, quam facile intelligas, si in anatome fueris exercitatus.

"Dicitur in nobis ex trium superiorum elementorum substantia esse spiritus triplex; naturalis, vitalis et animalis, tres spiritus vocat Aphrodisaeus; vere non sunt tres, sed duo spiritus distincti.

"Vitalis est spiritus, qui per anastomoses ab arteriis communicatus venit, in quibus dicitur naturalis,

"Primus ergo est sanguis, cujus sedes est in hepate, et corporis venis. Secundus est spiritus vitalis, cujus sedes est in corde et corporis arteriis. Tertius est spiritus animalis, quasi lucis radius, cujus sedes est in cerebro et corporis nervis, in his omnibus est unius spiritus et lucis Dei energia.

"Quod a corde communicatur hepati spiritus ille naturalis, docet hominis formatio ab utero.

"Nam arteria mittitur juncta venae per ipsius foetus umbilicum; itidemque in nobis postea semper junguntur arteria et vena. In cor est prius, quam in hepan, a Deo inspirata Adae

anima, et ab eo hepati communicata. Per inspirationem in eos et nares, est vire inducta anima; inspiratio autem ad cor tendit. Cor est primum vivens fons caloris, in medio corpore. Ab hepate sumit liquorem vitae quasi materiam, et eum vice versa vivificat; sicut aquae liquor superioribus elementis materiam suppeditat et ab eis juncta luce ad vegetandum vivificatur.

"Ex hepatis sanguine est animae materia, per elaborationem mirabilem quam nunc audies. Hinc dicitur anima esse in sanguine et anima ipsa esse sanguis, sive sanguineus spiritus. Non dicitur anima principaliter esse in parietibus cordis, aut in corpore ipso cerebri, aut hepatis sed in sanguine, ut docet ipse Deus. (Genes. 9, Levit. 17, et Deut. 12.)

"Ad quam rem est prius intelligenda substantialis generatio ipsius vitalis spiritus, qui ex aere inspirato et subtilissimo sanguine componitur, et nutritur, vitalis spiritus in sinistro cordis ventriculo suam originem habet juvantibus maxime pulmonibus ad ipsius generationem. Est spiritus tenuis, ut sit quasi ex puriori sanguine luciduc vapor, substantiam in se continensa quae, aëris et ignis. Generatur ex facta in pulmonibus mixtione inspirati aëris cum elaborato subtili sanguine, quem dexter ventriculus cordis sinistro communicat. Fit autem communicatio haec, non per parietem cordis medium, ut vulgo creditur; sed magno artificio a dextro cordis ventriculo, longo per pulmones ductu, agitatur sanguis subtilis; a pulmonibus praeparatur, flavus efficitur, et a vena arteriosa in arteriam venosam transfunditur.

"Deinde in ipsa arteria venosa inspirato aëri miscetur, et expiratione a fuligine repurgatur. Atque ita tandem a sinistro cordis ventriculo totum mixtum per diastolem atrahitur, apta suppellex, ut fiat spiritus vitalis.

"Quod ita per pulmones fiat communicatio et praeparatio, docet conjunctio varia, et communicatio, venae arteriosae cum arteria venosa in pulmonibus. Confirmat hoc magnitudo insignis venae arteriosae, quae nec talis, nec tanta facta esset, nec tantam a corde ipso vim purissimi sanguinis in pulmones emitteret, ob solum eorum nutrimentum, nec cor pulmonibus hac ratione serviret: cum proesertim antea in embryone solerent pulmones ipsi aliunde nutriti ob membranulas illas, seu valvulas cordis, usque ad horam nativitatis nondum apertas, ut docet Galenus. Ergo ad alium usum effunditur sanguis a corde in pulmones hora ipsa nativitatis, et tam copiosus.

"Item, a pulmonibus ad cor non simplex aer, sed mixtus sanguine mittitur, per arteriam venosam: ergo in pulmonibus fit mixtio. Flavus ille color a pulmonibus datur sanguini spirituoso, non a corde, in sinistro cordis ventriculo non este locus capax tantae et tam copiosae mixtionis, nec ad flavum elaboratio illa sufficiens. Demum, paries ille medius cum sit vasorum et facultatum expers, non est aptus ad communicationem et elaborationem illam licet aliquid resudare possit.

"Eodem artificio, quo in hepate sit transfusio a vena porta ad venam cavam propter sanguinem, sit etiam in pulmone transfusio a vena arteriosa ad arteriam venosam propter spiritum. Si quis hoec conferat cum iis quae scribit Galenus lib. 6 et 7, de usu partium, veritatem penitus intelliget, ab ipso Galeno non animadversam.

"Ille itaque spiritus vitalis a sinistro cordis ventriculo in arterias totius corporis deinde transfunditur, ita ut qui tenuior est, superiora petat, ubi magis adhuc elaboratur, praecipue in plexu retiforme, sub basi cerebri sito, in quo ex vitali fieri incipit animalis, ad propriam rationalis animae sedem accedens: iterum ille fort ius mentis ignea vi tenuatur, elaboratur, e perficitur, in tenuissimis vasis, seu capillaribus arteriis, quae in plexibus choroidibus sitae sunt, et ipsissimam mentem continent, hi plexus intima omnia cerebri penetrant, et ipsos cerebri ventriculos interne succingunt, vasa secum complicata, et contexta servantes, usque ad nervorum origines, ut in eos sentiendi et movendi facultas inducatur. Vasa illa miraculo magno tenuissime contexta tametsi arteriae dicantur, sunt tamen fines arteriarum, tendentes ad originem nervorum ministerio meningum.

"Est novum quoddam genus vasorum. Nam sicut in transfusione a venis in arterias, est in pulmone novum genus vasorum, ex vena et arteria: ita in transfusione ab arteriis in nervos, est novum quoddam genus vasorum, ex arteriae tunica et meninge: cum praesertim meninges ipsae suas in nervis tunicas servent. Sensus nervorum non est in molli illa eorum materia; sicut nec in cerebro, etc."

THE ENGLISH VERSION.

In order to make thee understand exactly the cause of the soul and the spirit, I will here, reader, cause divine philosophy to intervene so that you will comprehend it the easier if thou art expert in anatomy. It is said that in us is found a triple spirit, proceeding from the substance of three superior elements, namely the natural, vital and animal spirit. Aphrodiseus calls them the three spirits; in reality there are not three, but only two, quite distinct. The vital spirit is that which by the anastomoses passes from the arteries into the veins, where it takes the name of natural spirit. The first of these spirits is consequently the blood whose seat is to be found in the liver and the veins of the organism.

The vital spirit is the second, it has its seat in the heart and in the arteries of the body. The third, lastly, is the animal spirit which, comparable to a ray of light, resides in the brain and in the nerves; the force of the unique spirit of God and of his light exists in these organs. The formation of man by the uterus teaches us how the natural spirit is transmitted to the liver by the heart. At this time the artery united to the vein, passes by way of the umbilicus to the fetus; and thus from here afterwards our veins and our arteries will be in communication. The heart possesses the soul inspired by God in Adam before the liver, and it is from it that the latter

receives it. It is, thanks to the inspiration, effected by the mouth and the nostrils that the soul is in reality introduced, and as the products of the inspiration are directed towards the heart, it is this organ, the true source of heat, in the midst of the body, which lives the first. It receives from the liver the liquid which is, so to speak, the matter of life and vivifies it itself in its turn. Thus, in plants, the aqueous liquids provide for the superior elements materials of nutrition and receive life from them with the aid of light. From the hepatic blood consequently comes the matter united to the soul, and this takes place by an admirable elaboration, that thou wilt now hear actually exposed. From all this it is said that the soul resides in the blood, still more, that this constitutes the soul itself it is, so to speak, a spirit of a sanguineous nature. It is impossible to pretend that the soul preferably resides in the walls of the heart or in the deep mass of the brain or liver; it is seated in the blood as God himself teaches.

In order to reach this point, it is necessary in the first place to understand the genesis of the vital spirit itself, whose constitution and nutrition are derived from the inspired air and from the most subtle blood that can be seen. The vital spirit takes its origin from the left ventricle of the heart, the lungs contributing to the greatest extent in its formation. It is a subtle spirit, similar to the clear vapor of blood, too pure, so to speak, and containing in it its own substance, that is to say, air and heat. It arises from a mixture which takes place in the lungs between the inspired air and the subtle and improved blood that the right ventricle passes over to the left heart. This encounter does not take place through the interventricular wall, as has been vulgarly thought. This subtle blood, from the marvelous action of the ventricle and by a long circulation in the lungs is greatly agitated; it is prepared by these organs, rendered clear and transmitted by the arterial vein to the venous artery. It is afterwards, in the venous artery itself, mixed with the inspired air and purified of the smoke by expiration. And lastly, this entire mixture, formation apt to fulfill its functions, is drawn during the diastole by the left ventricle. Thus is formed the vital spirit.

The various anastomoses and communications which unite the arterial vein and the venous artery in the pulmonary tissue make evident that it is certainly thus by the intermediary of the lungs that the passage and preparation of the blood is effected. The very great size of the remarkable arterial vein confirms this fact. It is not thus formed, and with such very large dimensions, any more than it sends out of the heart such a large quantity of pure blood into the lungs only with the single end to accomplish their nutrition. The heart would not serve even for this end, for the reason that in the embryo the lungs are obliged to look elsewhere for their elements of nutrition, on account of the presence of small membranes and the valves of the heart, which, as Galen teaches, only open at the time of birth. It is consequently with another end, that at the time of birth, the blood flows in such great quantity from the heart into the lungs. In the same way, it is not simply air which is sent from the lungs to the heart by the venous artery, but a mixture of air and of blood; it is consequently in the lungs that this takes place. The light colored hue which characterizes the spirituous blood, is given to it by the lungs and not by the heart. The left ventricle is not in fact a sufficiently large cavity to allow such a considerable mixture of such abundant elements, and this elaboration would be insufficient to produce the light color of the blood. Lastly, the intraventricular wall, being deprived of vessels and any property whatsoever can in no way serve for the communication of air with the blood, no more than to the elaboration of this, since nothing can transude. The same mechanism which presides in the liver over the passage of blood from the portal vein to the vena cava, also presides in the lung over the passage of the spirit of the arterial vein into the venous artery. If one will compare what I have just said with that which Galen has written, in his VI and VII books, on the use of different parts, one will easily understand that this writer did not pay attention to this truth.

The vital blood is afterwards transported from the left ventricle into the arteries of the entire body, in such a way that that which is the lightest reaches the highest regions, where it must undergo a still more perfect elaboration. This will be principally in the retiform plexus, situated under the base of the brain, where from vital it will commence to become animal, in approaching the domain proper of the reasoning soul. Again this blood is still more completely refined by the ardent force of the spirit, it is still elaborated and improved in these exceedingly narrow vessels, similar to arterial capillaries and which, situated in the arterial capillary plexuses contains the intelligence itself. These plexuses penetrate all the most intimate regions of the brain and surround the ventricles which are found in its interior. Rolled up on themselves and massed together, they go up to the origin of the nerves, from which the latter receive their faculty of feeling and of moving. Although these vessels, interwoven in the finest fashion possible are still called arteries, they nevertheless form the termination of the latter, extending to the origin of the nerves by the intermediary of the meninges. There is still another kind of vessel. Just as in the case of the passage of the blood from the vein into the artery, there is a new type of vessel in the lung proceeding from the two others; and just as the blood is allowed to go from the arteries to the nerves, so one encounters canals of a new specie. They arise from the arterial tunic and the meninges, since the latter contain nerves within their interior. The sensibility of the nerves is not seated in their soft substance any more than in the brain.

NOTES.

Note 1. The following is the exact copy of the death sentence rendered against Servetus at Lyons, which I have textually copied from Allwoerden's Historia Michaelis Serveti. Helmstadii, no date of publication. However, this work is a theological thesis which was upheld on Dec. 19, 1727.

" Entre le Procureur du Roy Daulphin demandeur en crime d'heresie scandaleuse, dogmatisation, composition de nouvelles doctrines & livres heretiques, schsime & perturbation de l'union & repos publiques, rebellion et desobeissance aux ordonnances faictes contre les heresies, effraction & evasion de prisons royalles Delphinales, d'une part; & Mre. Michel de Villenevfve medecin; parcy devant prisonnier aux prisons du Pallaix Delphinal de Vienne, & a present fugitif a cause desdits crimes, d'autre.

" Veu par nous les pieces justificatives desdites heresies, mesmes les Epistres & Escritures de la main dudit Villenevfve Adressées a Mre. Ieh. Calvin prescheur de Geneve & par ledit de Villenevfve recogneues, ses reponces, confessions & negations, les reponces & autres procedures concernantes Balthasard Arnollet Imprimeur, certaines basles & livres imprimez, desquels l'intitulation est Christianismi Restitutio, les tesmoings examinez sur ce que ledit de Villenevfve avoit composé & faict imprimer ledit livre a ses despens, les rapports des Docteurs eu Theologie & autres personnes notables sur les erreurs contenus audit livre & Epistres. Et lesquels erreurs & heresies sont d'ailleurs manifestes par la lecture d'yceux . . . faictes sur l'evasion des prisons & diligences de apprehender ledit Villenevfve, Adjournemens a trois briefs jours & defaults sur iceux obtenus, recollemens des tesmoings, conclusions diffinitives dudit Procureur du Roy Daulphin, & tout ce qui a été remys par devers nous; le tout consideré; nous avons dict & disons lesdicts defaults avoir esté bien & deuement obtenus, pour le profit desquels nous avons forclos & forcluons ledit de Villenevfve de toutes exceptions & defences, declairé & declairons atteint & convaincu des cas & crimes a luy imposez, pour reparation desquels nous l'avons condamné & condamnons, assavoir pour le regard de l'amende pecuniaire en la somme de mille livres tournois d'amende envers le Roy Daulphin, cela estre, incontinent qu'il sera apprehendé, conduyt sur un tumbereau avec ses livres a jour & heure de marché des la porte du Pallaix Delphinal par les carrefours & lieux accutumés jusques au lieu de la Hale de la presente Cité, & subsequemment en la place appellee de Charneve, & illec estre brusle tout vif a petit feu, tellement que fon corps foit mis en cendre. Cependant sera la presente Sentence executée en Effigie, avecques laquelle seront lesdits livres bruslez. Et si l'avons condamné & condamnons es despens & frais de Justice, desquels nous reservons lataxe, declairans tous & chacun ses biens acquys & confisqués au proffit de qui appartiendra, lesdits frais de Justice & amende sur iceux biens au prealable livrés & payés. De la Covr Vybally & Juge Delphinal. Grater Assesseur. Carver Assesseur. Pvtod Assesseur. Dv Prat Assesseur. Adebais Assesseur. Berand Assesseur. Phineret Assesseur. Tamptesiev Passard Assesseur. Bertier Assesseur. P. le Covrt Assesseur. Loys Marcel Assesseur. Christoffle Assesseur. Publiée ladite Sentence en plein jugement a l'audiance dudit Procureur du Roy Daulphin. Nous Vybally & Juge susdit seans dans l'Auditoire du Pallaix Delphinal de Vienne le dix septieme jour du mois de Juing l'an mille cinq cens cinquante troys. Presens a ce Mes. Philibert Collins, Alexandre Rolland, Clavde Magvin, Charles Perdomey, Pierre des Vignes, & plusieurs autres Practiciens de Vienne illec estans, & moy Gressier soubsigné, Chasalis.

" Dudit jour enuiron l'heure de mydy aprés que l'Effigie dudit Villenevfve avoit esté faicte au devant dudit Pallaix Delphinal, icelle Effigie par Francois Berode, Executeur de la haute Justice, lequel l'on a envoyé querir à ces fins, a esté mise sur untumbereau avec cinq basles des livres composés par icelluy Villenevfve, & aprés, ledit tumbereau, chargé desdits Effigie & livres, a esté conduit & mené par ledit Executeur des la porte dudit Pallaix par les carrefours & lieux accoutumés jusques au lieu de la Hale de la presente Cité de Vienne, & subsequemment en la Place appellée la Charneve, dans laquelle ladite Effigie a esté attachée à une potence expressement erigée, & après bruslée avec lesdits livres à petit feu par ledit Executeur, le quel a mis à deue & entiere execution ladite Sentence pour le regard de ladite Effigie, felon la forme & teneur, en presence de Gvigves Ambrosin crieur & Trompette de Vienne, Clavde Reymet, Michel Basset Sergens Royaulx Delphinaulx, Sermet des Chams, . . . de Vienne, & de plusieurs aultres gens illec assembles pour voir faire ladite execution. Ainsi a esté procedé, & par moy Greffier soubnommé receu, Chasalis. Extrait des Registres de la Cour du Balliage de Vienne par moy Greffier soubnommé receu, Chasalis. Extrait des Registres de la Cour du Baliage de Vienne par moy Greffier soubsigne, Chasalis."

Note 2. Cl. Michael de la Roche (Memoirs of literature containing a Weekly Account of the State of Learning, both at Home and Abroad, vol. I. For the years MDCCX and MDCCXI. London, printed by J. Roberts, and sold by A. Baldwin, near the Oxford Arms in Warwick-Lane, MDCCXII gives a correct copy of the original legal process and sentence which I here transcribe:

" Proces
fait & formé par devant Nos très redoubtés Seigneurs, Sindiques, Juges des causes criminelles de ceste Cité, à la poursuite & instance du Seigneur Lieutenant de ceste dite Cité, des dites causes instant
contre
Michel Servet de Ville-neuve au Royaume d'Arragon en Espagne.

" Lequel premierement est esté atteint d'avoir, il y a environ 23. a. 24. ans, fait imprimer un Livre Agnon en Allemagne contre la sainte & Individue Trinité, contenant plusieurs & grands Blasphemes contre icelle grandement scandaleux és Eglises des dites Allemagnes: lequel livre il a spontanément confessé avoir fait imprimer, non obstant les remonstrances & corrections a luy faittes de les faulses opinions par les scavans Docteurs Evangelistes des dites Allemagnes.

" Item, Et lequel livre a esté par les Docteurs d'icelles Eglises d'Allemagne, comme plein d'heresies, reprouvé, & ledit Servet rendu fugitif des dites Allemagnes a cause du dit livre.

" Item, & non obstant cela ledit Servet a perseveré en ses faulses erreurs, infectant d'icelles plusieurs a son possible.

" Item. Et non content de cela, pour mieux divulguer & espancher son dit venin & heresie, depuis peu de temps en ça il a fait imprimer un autre livre à cachette dans Vienne en Dauphine, rempli des dites heresies, horribles & execrables blasphemes contre la Sainte Trinité, contre le Fils de Dieu, contra le Baptesme des petits Enfans, & autres plusieurs saints passages & fondemens de la Religion Chrestienne.

" Item, A spontanément confessé qu'en iceluy livre, il appelle ceux qui croient en la Trinite, Trinitaires & Atheistes.

" Item, Et qu'il appelle icelle Trinité un D—— & monstre a tr—st—tes.

" Item, Et contre le vray fondement de la Religion Chrestienne, & blasphemant detestablement contre le Fils de Dieu, a dit Jesvs Christ n'estre Fils de Dieu de toute éternité, ains tant seulement depuis son Incarnation.

" Item, & contre ce que dit l'Escriture Jesvs Christ estre Fils de David selon la chair, il le nie malheureusement, disant ecelui estre crée de la substance de Dieu le Pere, ayant receu trois Elemens d'icelui, & un tant seulement de la Vierge: en quoy meschamment il pretent abolir la vraye & enticre Humanité de Nostre Seigneur Jesvs Christ, la fouveraine consolation du poure genre humain.

" Item, Et que le baptesme des petits enfans n'est qu'une invention Diabolique & Sorcellerie.

" Item, Et plusieurs autres points & articles, & execrables blasphemes desquels ledit livre est tout farci grandement scandaleux, & contre l'honneur & Maiesté de Dieu, du Fils de Dieu, & du Saint Esprit: quil est un cruel & horrible meurtrissement, perdition & ruine de plusieus poures ames, estans par sa dessus dite deloiale & detestable doctrine trabies. Chose épouvantable à reciter.

"Item, & lequel Servet rempli de malice intitula iceluy son livre, ainsi dressé contre Dieu & sa sainte doctrine Evangelique, Christianismi Restitvtio, qui est à dire, Restitution du Christianisme; & ce pour mieux seduire & tromper les poures ignorans, & pour plus commodément infecter son malheureux & meschant venin les lecteurs de de son dit livre, sous l'ombre de bonne doctrine.

"Item, Et outre le des susdit livre, assaillant par lettres mesmes Foy, & mettant peine icelle infecter de sa poison, a volontairement confessé & reconna avoir escrit lettre à un des Ministres de cette Cité, dans lequell entre autres plusieurs horribles & enormes blasphemes contre nostre sainte Religion Evangelique, il dit nostre Evangile estre sans foy & sans Dieu, & que pour un Dieu nous avons on C—re à tr—ts—tes.

"Item, Et a davantage voluntairement confessé qu'au dessus dit lieu de Vienne, à cause d'icelui meschant & abominable livre & opinions, il fut fait prisonnier; les quelles prisons perfidement il rompit & échappa.

"Item, & n'est seulement dressé ledit Servet en sa doctrine contre la vraye Religion Chrestienne; mais comme arrogant innovateur d'heresies, contre la Papistique, & autres; si que à Vienne, mesme il est esté brusle en Effigie, & de ses dits livres cinq bales bruslées.

"Item, Et non obstant tout cela, estant ici ès Prisons de cette Cite detenu, n'a laissé de persister malicieusement en ses dites meschantes & detestables erreurs, les taschant soustenir avec injures & calomnies contre tous vrais Chretiens & fideles tenementiers de la pure immaculée Religion Chrestienne, les appellant Trinitaires, Atheistes & Sorciers, non obstant les remonstrances a luy deja dès long temps en Allemagne, comme est dit, faites, & au mepris des reprehensions, emprisonnemens & corrections a luy tant ailleurs qu'icy faites. Comme plus amplement & au long est contenu en son Proces.

SENTENCE.

"Novs Sindiques, Juges des Causes criminelles de cette Cité, aians veu le Proces fait & formé par devant Nous, à l'instance de nostre Lieutenant és dites causes instant, contre toi Michel Servet, de Ville-neuve au Royaume a'Arragon en Espagne, par lequel & tes volontaires Confessions en nos mains faites, & par plusieurs fois reiteréesm & tes livres devant Nous produits, Nous conste & appert Toy Servet avoir dès long temps mis en avant Doctrine fausse & pleinment hereticale & icelle mettant arriere toutes remonstrances & corrections, avoir a'une malicieuse & perverse obstination, perseveremment femée & divulgée jusques à l'impression de livres publics, contra Dieu le Pere, le Fils, & le Saint Esprit; bres contre les vrais fondemens de la Religion Chrestienne, & pour cela fasché de faire schisme & trouble en l'Eglise de Dieu, dent manites ames ont peu estre ruinées & perdues (chose horrible & épouvantable, scandaleuse & infectante) & n'avoir eu honte ni horreur de te dresser totalement contre le Maiesté Divine et Sainte Trinité; ains avoir mis peine, et t'estre emploie obstinement, à infecter le monde de tes heresies et puonte Poison hereticale, Cies et crime d' heresie grief et detestable, et meritant grieve Punition corporelle.

"A ces causes, et autres justes à ce Nous mouvantes, desirans de purger l'Eglise du Dieu de tel infectement, et retrancher d'icelle tel membre pourri, aians eu bonne participation de conseil avec nos Citojens, et aians invoqué le nom de Dieu, pour faire droit jugement, seans pour Tribunal au lieu de nos Maieurs, aians Dieu et ses saintes Escritures devant nos ieux, disant, Au now du Pere, du Fils, & du Saint Esprit, par cette nostre definitive Sentence laquelle donnons ici par Escrit. Toy Michel Servet condamnons à devoir estre lié et mené au lieu de Champel, et là devoir estre à un pilotis attaché et brusle tout vif avec tou livre, tant escrit de ta main qu'imprime, jusques a ce que ton corps soit reduit en cendre; et ainsi finiras tes jours, pour donner exemple aux autres, qui tel cas vodroient commetre. Et à vous Nostre Lieutenant, commandons nostre presente Sentence faites mettre en Execution."

Note 3. The work to which Servitus owed his death has an exact title: "*Christianismi restitutio. Totius ecclesias apostolicoe ad sua limita vocatio, in integram restituta cognitione Dei fidei Christi, justificationis nostrae regenerationis baptismi, et coenoe Domini manducationie.*" It is a book of 734 pages and almost anonymous, since *in fine* is only signed by the initials M. S. V. [Michaelus Servetus, Villanovus]. Servetus met with almost insurmountable difficulties in the printing of the work, because the fear of possible punishment made the various publishers very circumspect. One of them at Bâle, who was first approached by the author, fearing the sanctions of the Reformation, would not undertake the work. The French printers also showed little enthusiasm in the new work for fear of arousing the anger of the all-powerful Inquisition. Servetus, however, finally prevailed upon two printers of Vienne [France], where he lived, Balthazar Arnollet and Guillaume Guéroult to establish a clandestine workshop, and thus the famous treatise saw the light of day only a few months before the death of its author. The judgment which condemned the latter to the flames was also applied to his work and both were doomed to disappear. The zeal carried out in the application of this sentence was such that out of the eight hundred copies of the work which existed at this time, three only escaped the search of the fanatic executioners. In the book already referred to, Dutens pretends that only one copy of the book was saved, for he says: "Le soin que l'on prit d—en bruler tous les exemplaires à Vienne, dans le Dauphiné, à Genéve et à Francfort, a rendu ce livre d'une si grande rareté qu'il n'en existe qu'un qui étoit autrefois dans la bibliothèque du landgrave de Hesse-Cassel et qui est à présent dans celle du duc de la Vallière."

Two other original copies unknown to Dutens are mentioned by Hoefer in his "Biographie générale" and in the "Nouveau Dictionnaire bibliographique" by Théodore Graesse. The latter authority expresses himself as follows: "On ne connait plus que deux exemplaires du livre, l'un dans la Bibliothèque impériale, à Vienne, et l'autre vendu à la Vallière. Un troisième conservé dans la Bibliothèque de Cassel, parait avoir péri."

One of the original copies is now preserved at the National Library of Paris and is the one that the authors alluded to mentioned as having been acquired by the Duc de la Vallière. It belonged in the first place to Colladon, one of the judges of Servetus, and was placed with him on the pile from which an unknown hand withdrew it. Some of the pages still show the traces of the flames. The first accuser of Servetus who used the work in order to edify his accusations has covered the pages with written remarks which are everywhere to be found along the margins.

Under what circumstances this precious document afterwards found its way to England is still obscure, but at all events it finally fell into the hands of the illustrious Dr. Mead, who, in his turn, made notes. The letter that Abbé Rive, librarian of the Duc de la Vallière, wrote to Dutens, shows the successive sales of which it was the object. The document published by Dutens in his work already referred to thus relates the facts: "Le livre avoit autrefois appartenu au docteur Mead qui en présent à M. de Boze, secrétaire de l'Academie des Belles-Lettres et Inscriptions; ou qui le troqua avec lui pour des médailles. A la mort de M. de Boze, M. Boutin, ancien intendant des finances, et M. le Président de Cotte, ayant acheté sa bibliothèque, ce livre échut en partage à ce dernier, qui le vendit ensuite à M. Gagnat, à un prix exorbitant. C'est du cabinet de M. Gagnat qu'il est passé dans notre bibliothèque (celle du duc de la Vallière); je l'ai payé 3,810 livres."

Thus Servetus' work remained for some time in the library of the Duc de la Vallière and when in 1783 the celebrated bibliophile sold his collection it was among those that the Count d'Artois bought in the name of the King and paid £4,120 for it alone. Since this time it has been in the National Library of Paris.

The copy which disappeared from the Library of Cassel belonged to a private party in Geneva, who sold it to the library at a very high price.

This most celebrated work has been reprinted twice only and that which Dr. Mead of London undertook was never finished. It was commenced with the text which is now in Paris, as original, this being the conclusion that one may draw from the opinion emitted by Dutens, when he says: "L'édition contrefaite de Londres, l'a été probablement sur ce même exemplaire (celui du duc de

la Vallière), dans le temps qu'il étoit entre les mains du docteur Mead. L'évêque de Londres obtint du gouvernement qu'on en défendit l'impression. Ce qui fit qu'il n'y eut que la moitié de l'ouvrage d'imprimé." What was wanting of the text was added in manuscript.

The second reprint, which was made at Nuremberg in 1790, under the direction of Murr, faithfully reproduces the original.

From what has been said all commentary is unnecessary, but it will at once be seen that from the medical view point this work is of great historical and scientific value, and in it is found an exact explanation of the pulmonary circulation described one hundred years before Harvey demonstrated the general circulation.

EMPYEMA AND ABSCESS OF THE LUNG AS SEQUELS OF ACUTE SUPPURATIVE APPENDICITIS.

BY HOMER GAGE, M.D., WORCESTER, MASS.

The important position which appendicitis occupies on the borderland of medicine and surgery, and the frequency with which its problems are presented to the general practitioner, as well as to the surgeon, keep it constantly before our medical societies and in our medical journals as a subject of the deepest interest.

The discussions in regard to its diagnosis, the operative or non-operative treatment and the time of operation have all brought out a great variety of opinion, and the brilliant results of surgical interference have hitherto occupied the chief place in these discussions.

It is inevitable that the pendulum of medical opinion should swing backward, and we see an important indication that the time for such a movement is near at hand, in a late discussion of the subject before the French Academy, in which the present wholesale removal of appendices was strongly condemned as unscientific and unnecessary.

These criticisms apply, of course, chiefly to the treatment of the chronic forms, and with especial force to those in which the symptoms are chiefly reflex. For the acute suppurative forms of appendicitis, the consensus of medical as well as surgical opinion is and will, I think, remain strongly in favor of prompt and early operation. Until we discover some means of distinguishing at the outset those processes which are destined to spread from those that are likely to resolve the safest rule will be to operate in all cases of acute appendicitis as soon as the diagnosis is clear, and, as in the treatment of irreducible hernia, in case of doubt, operation is probably safer than delay. I question if a better rule is ever formulated.

But aside from these general questions, which have been the subject of so much discussion, there are many other points still to be studied and made prominent, and I am thinking particularly of those presented by the various complications and sequelæ of appendicitis, and propose to ask your attention for a moment to those cases in which the pleura and the lung are secondarily involved.

In his monograph on the "Pathology of the Vermiform Appendix," published in 1893, Kelynack[1] says, that "occasionally, as a result of appendicitis, subphrenic abscess may be formed, and in several instances perforation through the diaphragm has followed, setting up a purulent pleurisy and most fatal form of suppurative penumonia."

In 1895 Hawkins[2] refers to two cases in which a definite right-sided pleurisy developed in the course of a simple perityphlitis, and Lockwood[3] refers to a case in which pus was obtained by aspirating through the eighth intercostal space behind, and at autopsy the appendix was found inflamed and surrounded by an abscess which had tracked up behind the peritoneum to the under surface of the diaphragm.

Deaver,[4] in 1900, speaks of purulent pleuritis, which may or may not be accompanied by inflammation, abscess or gangrene of the lung; relates an unoperated case in which at autopsy a perforated appendix was found lying just below the diaphragm, the abscess around which had perforated through the diaphragm into the lungs; and adds that, in addition to this case, "I have encountered several others in which the pus from a peri-appendiceal abscess was evacuated through the mouth." Kelly[5] also mentions empyema as commonly a sequel of subphrenic abscess.

Among the earlier references to the subject in the medical journals is an account of a case presented at a meeting of the New York Pathological Society by Thacher[6]; it was a case of appendicitis with perinephritis and subdiaphragmatic abscess with perforation into the lung, and he referred to a similar case presented to the same society several years before; in both the abscess reached along the front of the kidney to the under surface of the liver, then formed a pocket between the diaphragm and liver, whence it perforated into the lung.

Fowler,[7] in an article entitled "Observations on Appendicitis," in 1894, mentions among its complications and sequelæ, "purulent pleuritis, or purulent pericarditis," referring to them as possible results from hepatic abscess. He says that "large collections of pus situated superiorly or posteriorly within the liver will tend to find their way through the diaphragm," and does not seem to differentiate between hepatic and subphenic abscess.

In the course of the discussion on appendicitis, before the Société de Chirurgie of Paris, in 1894, Terrillon[8] called attention to an accident quite rare in suppurative perityphlitis, viz., purulent pleurisy; and related three cases, in one of which recovery followed successive operations for the relief, first of the appendiceal abscess, then of the pleural empyema, while in the other two cases death followed failure to interfere. A case of recovery after operation is recorded in the Reports of St. Thomas Hospital[11] for 1899.

Christian and Lehr,[9] in 1903, reported seven cases of subphrenic abscess occurring as a complication of appendicitis, and in four of these the process had extended into the pleural cavity. In

none of these was there a direct perforation of the diaphragm, but an extension of the process by way of the lymphatics.

Sonnenberg[10] found lung complications in 5% of 740 cases of appendicitis, but these were chiefly the result of thrombosis and embolism, and there were only 7 cases of pleurisy. In a thousand cases collected from the statistics of the London Hospital,[13] there were 7 cases of empyema and none of pulmonary abscess.

Elsberg[12] collected 73 cases of subphrenic abscess, of which 68% arose from abscess about the appendix, and in 25% of these the diaphragm was perforated. He mentions three ways in which a subphrenic abscess, secondary to appendicitis, may occur:

1. By localization in the right or left subphrenic region of a general systemic infection.

2. By localization, with foci of suppuration in various parts of the abdomen.

3. By direct extension.

This latter is by far the most common method of origin, and the extension may occur intraperitoneally, as by direct force of gravity, or extra-peritoneally, in which case the track lies behind and above the kidney and causes little or no downward displacement of the liver. Once established in the subphrenic space, the further extension of the suppurative process through the diaphragm to the adjacent pleura is easily accomplished; the contiguous portion of the lung is next attacked, communication with a bronchus follows, and the abscess is frequently evacuated through the mouth.

Such is the ordinary sequence by which suppurative appendicitis results in empyema and abscess of the lung. Both may be present as the result of a general systemic infection, in common with multiple pyemic abscesses in other regions, and it is possible that a single abscess of the lung may be met with, in which infection has been transmitted through the circulation, though this is yet to be demonstrated by post-mortem examination.

In regard to the frequency with which these conditions occur, the most astonishing statement is that of Volbrecht, quoted by Kelly, who claims to have found evidence of pleuritic involvement in 38% of the cases in Gerhardt's clinic, but this seems so entirely out of accord with the experience and opinions of others that there must have been some error in observation or quotation.

Sonnenberg tabulated the relative frequency of perforation into different tissues and organs in 424 cases of appendicitis, and found that the pleural cavity was involved in six. From my own records I am able to find 6, or a little less than 1% of all cases, or a little over 2% of the suppurative cases in which a secondary involvement of pleura and lung was clearly established, and one other doubtful case, to which I shall refer later.

It is quite possible, as suggested by Kelly, for a pleural empyema to be discovered and operated upon, while the primary cause, a suppurative appendicitis, has been overlooked. One instance of this has occurred in my own experience. In January, 1905, I was called upon to operate on a man forty-five years old, who had pain, with the physical signs of effusion in the lower part of the right chest, a foul purulent expectoration, and the escape of gas, with a distinctly fecal odor in the breath, whenever he coughed.

I removed a portion of the seventh rib in the post-axillary line and evacuated about 4 oz. of pus, which was dark brown in color and had a distinctly fecal odor, similar to that so commonly observed in abdominal suppuration. On further questioning, it developed that three weeks before he had abdominal pain, tenderness in the right iliac region and well-marked symptoms of appendicitis. The local signs had rapidly improved, and although he had not at any time recovered his health, the original trouble had been apparently so insignificant that it had been lost sight of.

Such instances, however, are unusual. The primary lesion is generally much more severe, almost always associated with a suppurative process that has compelled incision and drainage, and seldom heals before the complications are recognizable.

The only other instance in my experience where pulmonary complications have occurred after the appendix abscess has healed was in a child of six years old, whose case was of especial interest to me, and its proper classification has always been in doubt. An abscess of three days' duration was opened, the appendix removed and the wound drained. The discharge cleared, the wick had been removed and the wound healed without any evidence of abdominal infection. On the third day he developed a right-sided pneumonia with a high temperature, but in the course of a week both physical and constitutional signs had disappeared, the temperature was normal for several days and the child was sitting up in bed.

The temperature then returned, associated for the first time with abdominal pain and distention. He died six days after the appearance of these symptoms, on the nineteenth day of his illness. At the autopsy by Dr. Baker, there was found an abscess of the right lung, pus in both pleural cavities, but more abundant in the right, and a general suppurative peritonitis, chiefly noticeable in the upper part of the abdomen.

The region about the cecum showed no evidence of fresh infection, no pus, and the stump of the appendix was smooth, thoroughly healed and not even injected. I regret that no culture was taken at the operation; at the autopsy the infection was found to be a pure streptococcus. I have always felt that the pulmonary complications may have been purely accidental, and due to the inhalations of vomitus while under the influence of the anesthetic, that the patient recovered from the appendicitis, but died from the effects of an inhalation pneumonia.

If he did not, the case will have to be classified as one of infection through metastasis, and not by direct extension, a condition that may obtain, but must be very rare. I have seen no other case that could be so classified.

I have had one other serious lung infection, which is also the only case in which the left side of the thorax was involved primarily. It occurred in a young male, twenty-one years old, who was operated on five days after the onset of the disease. A perforated, gangrenous appendix was found and removed, but there was already present a general suppurative peritonitis.

The abdomen was thoroughly flushed with salt solution, and large quantities of pus removed from the upper part of the abdomen from both right and left sides. His respirations were, from the outset, rapid (30 to the minute) and shallow, but there was nothing abnormal to be discovered on auscultation or percussion, and I attributed the condition to the presence of the general peritonitis.

On the sixth day, he began to complain of pain in the left upper quadrant, followed on the next day by pain in the left chest with signs of consolidation in the back. On the tenth day he had a severe collapse, and coincidently began to expectorate large quantities of foul-smelling pus. He rallied slowly, and for five weeks lay in a most critical condition with temperature ranging from 100° to 102°, pulse from 130 to 150 and respirations from 30 to 40. The cough and foul expectorations continued, and were accompanied by progressive and extreme emaciation.

At no time were there any signs of a pleural effusion, but there were unmistakable indications, on physical examination, of a large cavity in the lower lobe of the left lung, extending almost to the anterior line, and as high as the sixth rib, with a limited area of consolidation around it.

Meanwhile his abdominal wound had closed, and his ability to take and assimilate nourishment continued almost without interruption. His temperature ranged from 99° in the morning to 101° or 102° in the afternoon; and at the end of two months he was able to be carried to his home, weighing just ninety pounds, having lost forty-five pounds in the eight weeks.

The cough and expectoration remained unchanged however, and the physical signs of the lung cavity were still present. He gained slowly but steadily, was finally able to go to the high hills of Vermont; whence I learn that now, after a lapse of six months, his cough is nearly gone, he has gained thirty pounds in weight and feels encouraged to believe that his recovery may be complete. Tubercle bacilli were repeatedly sought for, but never found in the sputum.

In this case I think the infection of the lung came from the extension of an abscess in the subphrenic region on the left side, passing through the diaphragm to the lung, which had become adherent to its upper surface. It is the only one of my cases in which the left thorax was invaded primarily, and the only one n which the subphrenic abscess was not in direct communication with the primary focus.

In the great majority of cases the right side is the one involved, and the usual history is that of an abscess in the right iliac region, above the brim of the pelvis, extending to a greater or less distance along the outer side of the ascending colon.

Under such conditions gravity often favors the extension of the abscess to the subphrenic region; the continued rise of temperature, after an initial fall, with the presence of pain and soreness in the region of the liver, even a good while after the primary operation, affords good reason for suspecting that such an extension has taken place; and when, after a short interval, the pain is felt higher up, under the seventh to tenth rib, is especially marked on inspiration, and is associated with a short, hacking cough, one feels confident that the pleura is involved.

It seems to be characteristic of these effusions that they never become very large in amount, and that they usually form a communication with a bronchus and find an outlet through the mouth. In one instance, to which I shall refer again, after the discharge from the bronchus, which was always small, fluctuation appeared in the back, and the abscess was evacuated by an incision near the inferior angle of the scapula, one inch behind the posterior axillary line. In the three other cases, which constitute my experience with these complications, no surgical interference was attempted, with the result that two recovered and one died.

The patient whose abscess pointed in the back had an especially interesting and unusual history. She was operated on in May, 1901; the appendix was removed, and a large localized abscess, reaching up to the under surface of the liver, was exposed.

She recovered with a fecal fistula, and a sinus extending up along the track of the original abscess, from which pus was still discharged. In August she began to have pain in right side with cough and, finally, purulent expectoration; and one month later, in September, a swelling appeared just below the angle of the scapula and behind the posterior axillary line which was opened and drained. The pus was of the same character and odor as that from the old sinus.

She now had two sinuses and a fecal fistula, none of them discharging constantly; the fecal fistula would often stay closed for a week at a time, and never discharged a great quantity except when the bowels were very loose. The sinus in the back and that at the upper end of the anterior incision would close for longer times, but every now and then she would be seized with violent pain, the relief from which was always associated with a free discharge of pus from front or back or both.

In January, 1903, I operated for the closure of the fecal fistula and repair of a ventral hernia. Both were successfully accomplished, but although I made an effort to clean up the other sinuses by dilating and curetting them, they continued to gather and discharge periodically, the gatherings always associated with great pain and distress, but as soon as the discharge appeared the pain was relieved and she resumed her regular habits of living.

In January, 1905, she sought relief again and this time I succeeded in establishing a direct communication between the sinus in the back and the one in front, passing a long sound through and then laid the track freely open by an incision, which began just below the inferior angle of the scapula and behind the posterior axillary line to a point just below the border of the ribs and about two and one-half inches to the right of the median line in front. The sinus passed beneath the tenth rib which was stripped of its periosteum, and at a point about three inches from the anterior opening, communicated with a cavity as large as a hen's egg, containing 3 oz. of foul-smelling pus.

By the removal of the tenth rib from the posterior axillary line to the costo-chondral junction and the eleventh rib entire, the track of the sinus and the pus pocket were perfectly exposed, thoroughly cleaned out and packed with iodoform gauze. Thus treated the wound granulated from the bottom and the patient was discharged well in six weeks. The contraction of the cavity has destroyed the symmetry of the waist line, but she has ever since remained perfectly well.

The three other cases were similar, in that there was direct extension of the suppurative process from the region of the appendix to the right pleural cavity through the diaphragm, but the escape of pus in each was through a perforation into the lung. Two of them made perfect recoveries, without further surgical interference; and one, a boy of nine years, died from general sepsis and exhaustion.

From a consideration of these cases it would seem as if the mortality was but little greater than that of the average case of suppurative appendicitis, being only one in six, or 16⅔%, omitting the case in which the infection was of doubtful origin.

I am inclined to believe, however, that this is not a statement of the real mortality attendant upon these cases, and I cannot help feeling that if I could have had autopsies on more of my fatal cases, it would be found that pleural infection was not only more fatal, but more common, and that the relatively favorable cases are those in which evacuation takes place through a bronchus.

This view is further supported by the fact that Elsberg found the total mortality of his 73 cases of subphrenic abscess to be 40%, and that Christian and Lehr found subphrenic abscess present in 7 out of 86 autopsies, after suppurative appendicitis. Under these conditions it would seem as if in some of my fatal cases, at any rate, the complication must have been overlooked.

As regards treatment, there is really very little to be said. I believe much may be done in the way of prevention, by more efficient drainage of those abscesses which extend back into the flank; this many be accomplished by leaving a large opening in the abdominal wall, high enough up to be directly over the upper part of the abscess, or by making a counter opening in the loin; in other words, providing for a drainage that will prevent the backing up of pus toward the liver and diaphragm.

When a subphrenic abscess or pleural empyema is suspected and confirmed by the physical signs, I should adopt the method of Elsberg, removing two inches of the ninth and tenth ribs between the scapula and anterior axillary line. If pus is believed to be in the pleural cavity, aspirate; and if found, open and drain. If the pus is believed to be below the diaphragm, wall off the upper part of the wound with gauze and aspirate below the reflexion of the pleura; and if a subphrenic abscess is found, open and drain as before; but avoid, if possible, any contamination of the pleura.

In conclusion, I would direct your attention to the following points:

1. That abscess of the lung and pleural empyema are not infrequent sequels of appendicitis, being present in not less than 2% or 3% of all suppurative cases.

2. That the source of infection may occasionally be overlooked.

3. That they may occur, although rarely, as true metastasic processes, more commonly as a result of a collection of pus in the subphrenic space in the course of a general purulent peritonitis; but by far most frequently of all, as the result of a direct extension of an abscess along the outer side of the ascending colon to the right subphrenic space, and thence to the pleura and the lung.

4. That these complications are by no means necessarily fatal; on the contrary, in those cases where the pus finds an outlet through a bronchus, and is discharged from the mouth, a favorable result may be expected.

5. That much may be done to prevent such an accident by more efficient drainage of those abscesses which lie on the outer side of the cecum, above the brim of the pelvis, and which, by their position, would naturally gravitate toward the loin.

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THE OPERATIVE TREATMENT OF HEMORRHOIDS, INCLUDING A BRIEF CONSIDERATION OF THE DIFFERENT OPERATIONS, CHARACTERISTIC ARRANGEMENT OF THE TUMORS AND THE TECHNIQUE OF THE LIGATURE OPERATION UNDER LOCAL ANESTHESIA.*

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In looking over the literature referring to hemorrhoids during recent years, one cannot help being impressed with the diversity of opinion that exists among surgeons as to the best methods of treatment. There is no doubt that nearly, or quite, all of the operative measures, such as the clamp and cautery, the Whitehead operation, excision of the tumors separately with or without suture, as well as various combinations of the foregoing, when properly carried out, as advised by the originators, are eminently satisfactory, so

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iar as radical cure is concerned. Yet the profession as a whole has not manifested any decided preference for any of these operations, and the reason seems to be that their advantages are more than counter balanced by the fact that it is practically impossible to perform any of them without first subjecting the patient to a profound general anesthesia.

Notwithstanding that many of the former objectionable features of ether and chloroform narcosis have been greatly minimized by the skillful administration of these agents in combination with nitrous oxide gas, ethyl chloride, etc., there yet remain many patients who regard all operations as portentous, which require general anesthesia.

The question is always asked after the completion of the examination if it is necessary to take ether; and I venture to say that should the answer be affirmative, not over 25% of the cases that apply for treatment at my office, or at the dispensary, would submit to operation, even though suffering the most distressing symptoms.

It is truly remarkable and hardly conceivable the inconvenience that will sometimes be endured and even the distasteful duties that patients will perform for themselves rather than submit to an operation which requires for its performance general anesthesia.

The replacement of internal hemorrhoids after each act of defecation, the soiling of undergarments from hemorrhages, the pain incident to strangulation, when griped by the external sphincter, the soreness and pain at other times, are among the annoyances which these patients will endure for years, getting only temporary relief from the numerous pile salves, lotions, suppositories, etc., which are at the present time so widely advertised.

It has been abundantly demonstrated during the last few years that nearly all of those afflicted with hemorrhoids can be relieved just as radically and safely by means of simpler measures, provided the operation is undertaken by one who has had the patience to master thoroughly the principles of infiltration anesthesia, and familiarize himself with the difficulties encountered in applying these principles to this operation.

To digress for a moment, let us note the position of internal hemorrhoids, and their various combinations. The drawing (see Fig. 1) shows the characteristic arrangement of internal hemorrhoids as they may be observed in most individuals. The drawing is made to represent the patient lying on the right side (the position for operation), with the internal hemorrhoids prolapsed. No attempt was made to represent the external hemorrhoids, which, although they often co-exist, may yet be absent entirely, and when present, vary greatly in size and shape, and may assume any position in the anal circumference.

Seven internal hemorrhoids are the most that I have ever observed in any single individual. My observations are based upon 256 cases of my own, in which the number and exact location were recorded, and upon probably as many more seen while in attendance at various rectal clinics.

Mr. W. Ernest Miles, of London, first called my attention to this interesting arrangement. When seven hemorrhoids are present in a given case they assume the arrangement set forth in the illustration.

The right anterior pile is invariably alone. This pile is the first to develop, and always may be demonstrated, except in those cases in which it may have sloughed in consequence of a previous strangulation.

The right and right posterior are coalesced. The left posterior and left are also coalesced.

The posterior pile and left anterior are distinct and much smaller than the others. The anterior pile is seldom met with. The highest number frequently met with in any single case does not exceed five, and they usually assume the position of the larger hemorrhoids in the drawing. Occasionally the right and right posterior are distinct, and likewise the left and left posterior.

In case only two or three piles have developed, they are generally distinct.

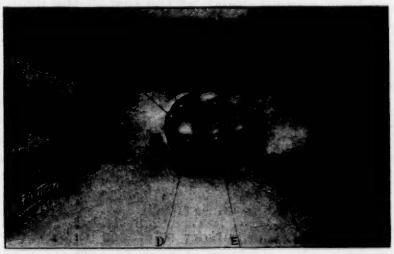


Fig. 1. — A, anterior pile. B, left anterior pile. C, left and left posterior piles coalescing. D, right anterior pile. E, right and left posterior piles coalescing. F, posterior pile. Patient is represented lying on the right side, with internal hemorrhoids protruded. The three smallest hemorrhoids are not often present.

Bearing in mind these considerations, and by referring to the illustration, it can be readily understood that in the ordinary case of four or five internal hemorrhoids, the tumors may be removed in three separate masses, because of the fact that two of the hemorrhoids on each side almost invariably develop as one.

CHOICE OF OPERATION.

It is the writer's opinion that the ligature, the foundation stone upon which all other operations are based, with the single exception of the Whitehead (circular incision), is the operation of choice, where local anesthetics are employed. Furthermore, it is very doubtful whether any of the numerous modifications are of much practical utility, owing to the character of the tissues and the peculiar anatomy of the anal canal.

When it is recalled that the sphincter muscles act as purse strings, constricting the anal canal, and also that when internal hemorrhoids are present there is considerable redundancy of mucous membrane, it can be readily understood that when the hemorrhoidal tumors are removed by the method presently to be described, that the

action of the sphincters, both external and internal, serve the purpose of very accurately coapting the edges of the wound. This anatomical feature explains why the ingenious modifications of the ligature method are so often discarded by those who operate considerably on this class of patients.

Not infrequently we see reports of some new operation, and occasionally they are exploited by surgeons of wide reputation, in which the only modification of this old procedure is that the wound is closed with immediate suture after the pedicle has been ligated. This addition to the original operation requires for its performance careful preparation of the patient for operation, profound general anesthesia, a tedious operation, the use of opium for confinement of the bowels for five or six days, a limited diet and detention from business for from two to four weeks.

And yet, notwithstanding all this technique, careful after-treatment, etc., the question may reasonably be asked, Is primary union often secured? The wound is not examined; how, therefore, is one to say positively that there has not been a small slough at the seat of the ligated pedicle? Certainly, after the simple ligature, when properly applied, there is but little evidence of ulceration, of any amount of discharge, or of any considerable gaping of the wound.

Another disadvantage of the excision method is that there is always some danger of infection following the closure of wounds in the ano-rectal region, whereas such is not the case if the wound is left open so as to secure drainage.

OPERATION.

With this rather cursory reference to the different surgical procedures I wish to call attention to the operation known as Allingham's, which can be performed safely and with but little discomfort to the patient under local anesthesia.

The success of the operation depends, as is the case when operating in other cavities of the body, upon a certain amount of manual dexterity and careful attention to the details of producing thorough anesthesia of the field of operation.

An operation for hemorrhoids, unless it is rendered practically painless, is much better performed under general anesthesia.

A careful preliminary examination is important to accurately determine the exact situation and size of the tumors which require removal, as well as to ascertain whether any other condition, such as fissures, fistulæ, ulcers, or polypoid growths, are co-existent. Failure to make this preliminary examination not infrequently will lead one to attempt cases which had much better have been subjected to general anesthesia. On the day before operation the bowels should be moved by a laxative. Purgation is by no means necessary, as it is likely to lead to movements during or immediately following the operation.

In case immediate operation should seem desirable, the patient can be quickly prepared by giving an eight-ounce enema of boric acid solution, which will effectually clear out the ampullæ of the rectum of any retained feces. The patient is now placed in the right semi-prone position, since the greater number of hemorrhoids will usually be found on this side. If the external sphincter muscle is found to be spasmodic and hypertrophied, so that the hemorrhoids cannot be readily prolapsed, the operation may still be performed by making use of a procedure suggested by Dr. James P. Tuttle, of New York. Tuttle has demonstrated that the sphincter muscles can be dilated with comparatively no pain by the injection of a few drops of cocaine solution into them at the point of entrance of the lesser sphincteric nerves. The needle is inserted in the posterior commissure three fourths of an inch from the anus, from which single puncture of the epidermis the nerve supply of the anal circumference may be effectually blocked. The divulsion of the sphincters is now carried out in the same manner as though the patient were profoundly etherized, and the small amount of discomfort occasioned by gently and gradually dilating even the most rigid of sphincters is quite surprising to one who sees it for the first time. The hemorrhoids now being prolapsed, they are operated on in rotation, beginning with the most anterior one on the right side. (See Fig. 2.) The others are taken in

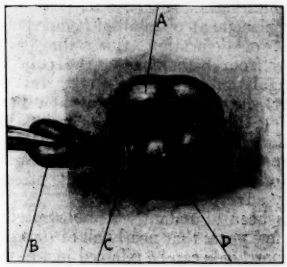


FIG. 2. — A, left and left posterior piles coalesced. B, right anterior pile. C, ligature. D, right and right posterior piles coalesced.

Shows right anterior hemorrhoid dissected free and ligature in place just before it is cut away. The four other hemorrhoids (two of them coalesced) may be removed with two ligatures. This figure illustrates the usual number of hemorrhoids and their most common arrangement in the anal circumference.

order, those on the lower side being first removed. By observing this order, the free oozing of blood which takes place upon separation of the hemorrhoid from the bowel will not obscure the field of operation in the manner in which it would were the superior ones first removed. Each tumor is now in turn moderately distended with one tenth of 1% solution of cocaine, then seized with a pair of pile forceps, and while gently elevated, the hemorrhoid is dissected upward until it is attached by a narrow pedicle which contains its main blood supply. There is very little danger of hemorrhage in this step of the operation, as the central artery and vein lie very superficially under the mucous membrane, and if the hemorrhoid has been elevated as just described, it is hardly possible to wound any large vessel. Carelessness, however,

in observing this small detail might result in a troublesome hemorrhage.

A ligature is now tied about the pedicle as high up as possible, and the hemorrhoid is cut off below the ligature, leaving sufficient stump to securely retain the ligature.

After the internal hemorrhoids have all been ligated, any folds of anal skin that are clearly redundant should be removed. If these ragged tags are allowed to remain they may prove of considerable annoyance to the patient, by his inability to properly cleanse the anal region after defecation. The persistent fecal soiling often causes pruritus in persons predisposed to its occurrence, and when inflamed they are excessively painful and render walking and sitting difficult. Their size and location should be made out before beginning the operation, because after dilatation of the sphincters and the manipulations incident to the operation it is often difficult to estimate clearly the amount of tissue that requires removal.

After infiltration with a one-tenth of 1% solution of cocaine, they may be easily and painlessly removed with a pair of curved scissors, and the resulting wound allowed to heal by granulation. If the base of the external hemorrhoid is quite broad, it is best to unite the edges with a catgut suture; yet this is rarely necessary because of the constricting action of the corrugator cutis ani muscle. When the folds are very numerous not more than three should be removed at one time, lest anal contraction take place.

AFTER-TREATMENT.

It should also be emphasized that the after-treatment of these cases requires careful attention. The bowels, as a rule, should act on the second day, and daily thereafter, a suitable laxative being resorted to as required.

The anal region should be kept scrupulously clean, and protected by wearing an anal pad of sterilized gauze. After the ligatures have separated, stimulating topical applications of 15% balsam of Peru in castor oil, or ichthyol and glycerin, 15%, should be made to the anal canal to secure raipd healing of any lesions which may remain.

Should there be much soreness or pain when at stool or otherwise (which is rarely the case), it can usually be relieved by the injection of an ounce of sterilized olive oil at night, which, aside from its local beneficial action, will secure an easy action of the bowels the following morning.

CONCLUSION.

In conclusion the writer wishes to reiterate that the great majority of cases of hemorrhoids, of whatever form, can be treated radically, satisfactorily, and with but little discomfort to the patient, without the use of general anesthesia. The practice of operating in one's office is greatly to be deprecated, except in cases of mild severity, where only one or two piles are to be removed.

While in a number of instances rather extensive operations have been performed in the office, and no serious mishap has ever occurred, yet much unnecessary discomfort and even suffering was occasionally caused by spasmodic contractures of the sphincters, due principally to allowing the patient to be about immediately after an operation of this importance.

As a result of certain published articles on the subject of regional anesthesia in the treatment of ano-rectal diseases, the impression prevails among many that it is only necessary for patients suffering with hemorrhoids to drop into a specialist's office, have his piles removed and then proceed down town to take up his usual daily routine.

To illustrate what may be expected in the way of detention from business or social engagements, the histories of five rather typical private cases that have recently undergone operation are here recited:

Case I. Mr. A., age fifty-six; occupation novelist; residence, New York City; referred by Dr. F. Because of his great dread of general anesthesia, he had been treated "off and on" for the past six years by the method known as punctate cauterization with the galvanic cautery, although advised to have a radical operation. The treatment with the cautery knife had resulted in a partial destruction of two of the hemorrhoids. When I first saw him he was suffering much pain and soreness caused by the internal hemorrhoids being strangulated and firmly grasped by the sphincters. The peri-anal folds were swollen and edematous. The external sphincter rigid and hypertrophied. Immediate operation was advised and accepted.

Operation at private hospital. The sphincter muscles were prepared for dilatation as previously described. After divulsion, the right anterior, the right, the left and left posterior piles coalescing were removed with three separate ligatures.

Three large folds of edematous redundant skin (external piles) were cut away. This patient suffered no pain during or after the operation though there was soreness about the anal region for a week. He was in the hospital ten days, though up and about after the first three days. This case is cited especially to controvert the accepted opinion held by some, that inflamed and strangulated hemorrhoids should be treated by palliative measures and the radical operation undertaken later after the acute symptoms have subsided. It has been my experience that the patient loses as much time from temporizing, with rest in bed, lotions, etc., as would be required for a radical operation which would spare him much suffering.

Case II. Mr. B., age thirty-one; traveling salesman. Diagnosis: Internal hemorrhoids with anal fissure. Duration, two years. Considerable pain when at stool which lasts for one-half hour after. Very little hemorrhage. Protrusions from anal orifice at each act of defecation. Very constipated. For the past two years has been using ointments night and morning.

Examination: External sphincter rigid and hypertrophied. Posterior linear ulcer at anal margin extending one-half inch upwards. Three internal hemorrhoids.

Treatment. At my office under local anesthesia the sphincters were thoroughly dilated and the three internal hemorrhoids removed with separate ligature. The fissure was excised. There was no pain during the operation. The patient was sent home in a carriage and walked up two flights of stairs, to which

may possibly be attributed a severe throbbing pain which lasted three hours, requiring the use of opiates. Three days later he called at my office feeling very comfortable and was able thereafter to attend his usual duties at a down-town house. The operation was on Saturday and only one day's detention from business resulted.

CASE III. Mr. N., journalist, age thirty-six. Referred by Dr. M. of Allston. He had had protruding internal hemorrhoids for ten years.

Rectal examination: External sphincter contracted but easily dilated. Large right anterior pile and three smaller ones, two of them coalesced.

Operation in office. The spincters were easily dilated without previous anesthetizing, and the internal hemorrhoids removed with three ligatures. Absolutely no pain during the operation. For a short time after the operation he complained of an ache about the anus, and of a weak feeling but soon returned to his home with Dr. M. in an automobile. Five days later he reported at my office feeling very comfortable, from which day he resumed his usual work.

CASE IV. Miss M., age forty-one. Referred by Dr. B. In 1897 she underwent ether operation for anal fissure. At the present time there are four internal hemorrhoids.

At a private hospital the hemorrhoids were removed with three ligatures. The sphincters were easily dilated, as much as required to place the ligatures in position without resort to regional anesthesia. No pain during and but little following operation. She remained in the hospital seven days.

CASE V. Mr. C., age sixty-nine; real estate business. Referred by Dr. G. Diagnosis: Internal and external hemorrhoids. Operation at residence. Sphincters dilated without anesthesia. Two internal hemorrhoids were ligated and the two external hemorrhoids removed. No pain during or following operation.

An annoying diarrhea set in on the fourth day which retarded his convalescence somewhat. Notwithstanding this complication he was able to go to his office in nine days.

After operation, absolute confinement to bed is unnecessary; in fact, these cases do better if on their feet somewhat, but they will hardly be able to attend their usual avocations in less than three or four days to a week, depending on the personal equation of the patient.

At the Boston Dispensary it has been my practice for the past three years to operate upon nearly every case of hemorrhoids, no matter how extensive, and the patients report daily thereafter for treatment, without seeming to experience any great inconvenience; but the application of these methods to more susceptible private cases has not proved equally satisfactory.

The operation is radical, and the only argument of importance I have ever heard against the ligature method is that it causes considerable pain until the stumps have sloughed away. This is due to the fact that the hemorrhoid has not been carefully freed from its muscular attachments, but has been strangulated almost *en masse*, without the previous dissections which I have described.

It is quite impossible to conceive that a ligature tied around the pedicle of a hemorrhoid would cause any more pain than if it were removed by any of the other methods commonly employed.

HEMORRHOIDS AND THEIR TREATMENT.*

BY CHARLES S. GILMAN, M.D., BOSTON.

THE subject of hemorrhoids and their treatment is an old one, but is of interest to medical men of to-day on account of the newer methods of treatment.

The term "hemorrhoids" or "piles" denotes a form of disease which originates in an altered or varicose condition of the veins of the lower rectum or anus. The change is not one of varicosity or dilatation alone; there is always some thickening of the vein wall, and a section of a hemorrhoid shows a large admixture of connective tissue elements around and between the dilated veins. This increase is more marked when the hemorrhoid is of long standing, or has been the seat of repeated attacks of inflammation, the resulting exudation leading to induration and thickening. "In some cases the proliferation of connective tissue has been so great that the veins have been nearly obliterated, the larger part of the hemorrhoid being of fibrous tissue." [1]

Classification. — Hemorrhoids are classified, according to their location, as external and internal. The former are covered with integument, and are located externally around the anal margin. The latter are covered with mucosa and are always found in the anal canal. Often hemorrhoids are seen with characteristics of both varieties, which are called externo-internal, or combination hemorrhoids, their lower portion being covered with skin, the upper with mucous membrane.

The external variety is divided into two classes, — cutaneous, or hypertrophied folds of skin; and venous, or thrombotic.

The internal variety is classified as venous and capillary.

Causes. — The causes of hemorrhoids are both predisposing and exciting. Among the predisposing causes are heredity, sex (more common in the male), age (during the most active period of adult life), occupation (those who lead a sedentary life and those doing heavy lifting are more commonly afflicted), manner of living (more common in higher walks of life), climate and season (some authorities claim that hemorrhoids are more common in the tropics), erect posture, absence of valves in the hemorrhoidal veins and the peculiar office of the rectum.

Anything which causes obstruction to the circulation, or induces straining, may result in a varicose condition of the veins of the lower rectum, and so we find among the exciting causes, diseases of the prostate, bladder, urethra, intestines, pelvic diseases, tumors of the abdomen or pelvis, obstructive hepatic diseases, tight lacing, pregnancy, diarrhea and constipation.

The injudicious use of drastic purges and of enemata tend to cause hemorrhoids, owing to straining and tenesmus produced at stool.

Symptoms. — The symptoms of hemorrhoids vary in different subjects. Some cases are seen

* Read before a meeting of N. E. Alumni of Baltimore Medical College, Nov. 7, 1906, and reread by request before the Norfolk South District Medical Society, Dec. 6, 1906.

[1] Goodsall and Miles, Part I, p. 252, 1900.

where but little discomfort is caused, even when the patient has a well-developed case.

The cutaneous variety, when not in a condition of inflammation, causes but little trouble, except more care in keeping the parts clean. They are usually in the form of distinct tags of skin at the anal orifice, or may be a proliferation of skin extending entirely around the anal margin. This condition favors an inflammatory attack, which may be caused by the use of rough paper as a detergent, by an attack of diarrhea or dysentery, by constipation, by abnormal discharges from the vagina or rectum, by friction of wearing apparel; in fact, by anything which may produce an irritable condition of the parts. They then become inflamed, enlarged and painful.

The thrombotic variety usually occurs in robust, active persons. They are a condition of a blood clot around the anal margin. Whether the condition is due to a rupture of the vein wall, which allows the blood to escape and coagulate in the tissues, or whether the blood coagulates in the vein itself does not matter as far as diagnosis and treatment are concerned. Any force or exertion which would break the vein wall or cause stasis in the vein, may produce this condition. During straining at stool while lifting a heavy weight, or during violent exertion, a sensation of something giving away is felt, and, upon examination, a painful swelling, varying in size from one sixteenth of an inch to one inch or more in diameter, is found at the anal margin; it is usually single, but may be multiple. The writer has seen as many as eight present in one case. The swelling is usually oval in shape and is, as a rule, dark purple in color. When seen immediately after its appearance, it is tense and cystic, but after a few days the appearance changes; the skin becomes loose, and the clot feels like a pea or bean beneath the skin. Defecation is difficult and painful, due to spasm of the sphincter, and there is discomfort when walking or sitting. Pain may be very acute, or dull and heavy, and may be referred to the sacrum and down the thighs.

Internal hemorrhoids are more serious than the external variety. In some cases severe hemorrhage has occurred when the patient has been previously unaware of the existence of any rectal disease. Besides the danger of hemorrhage, there is the inconvenience and discomfort which may occur from the protrusion and strangulation of the hemorrhoidal mass, and many cases are accompanied with severe pain.

The capillary form consists of a small raspberry-shaped development of the arterial capillaries close to the surface of the rectal mucous membrane; they are covered with a very thin layer of epithelium, which is easily ruptured, and are the source of frequent hemorrhages.

This form does not protrude and can be detected only with the aid of the speculum, unless the sphincter is greatly relaxed, when it is possible to evert the mucous membrane sufficiently to enable them to be observed. They bleed easily — the blood is of a bright, arterial character and oozes after the act of defecation. The amount of blood lost at one time is not very great, but often marked anemia is caused on account of the frequency of the bleeding. "When they have been in existence for some time the mucous membrane becomes thickened, hemorrhages cease, and eventually they resolve themselves into the venous variety." [2]

The venous variety is seen in three stages of development. In the first stage, the presence of the hemorrhoidal tumor can be detected by digital examination, with the aid of the speculum, or by everting the membrane of the anal canal; it does not protrude and is often present without causing the patient any discomfort.

In the second stage there is an increase in the size of the tumor, and a stretching of the mucosa, so that there is often protrusion through the anal orifice at defecation. During this stage there is a spontaneous return of the tumor into the anal canal as soon as expulsion has ceased.

In the third stage the hemorrhoidal tumor constantly protrudes unless the patient remains in the recumbent position for some time.

The chief symptoms of internal hemorrhoids are hemorrhage, pain, protrusion and a discharge of mucous.

In many cases bleeding is the first symptom noted by the patient. The hemorrhoid occurs at first only when the bowels are relieved, and varies in quantity from a few drops to a considerable loss of blood. The quantity of blood depends in a measure upon the consistency of the stools, hardened feces causing far more hemorrhage. When the hemorrhoids protrude after stool, but return spontaneously into the rectum, the bleeding may be profuse. In the third stage, when the hemorrhoids do not return spontaneously, but require manual manipulation (the protrusion occurring upon exertion, or while standing or walking), or during strangulation, there is not bleeding as a rule, but a discharge of mucus.

Pain is usually reflex in character, and may be referred to the dorsal surface of the sacrum or to the lower lumbar region. When there is protrusion or strangulation, the pain is localized at the anus and is then of a throbbing character, which is relieved after reduction, if no other disease complicates the case. When complicated by other diseases, local pains persist for some time after reduction has taken place.

The protrusion of hemorrhoids does not occur during the first stage, although it may be the first symptom noticed by the patient. The occurrence of protrusion marks the beginning of the second stage. During this stage they are reduced spontaneously and cause little inconvenience unless they become strangulated; then, if not reduced artificially, they will become painful, gangrenous and partially or completely slough.

During the third stage the sphincters are usually relaxed, and the protrusion is almost constant during defecation, active exercise, or prolonged standing.

The discharge of mucus is present chiefly during

[2] Tuttle: Diseases of Rectum, Anus and Pelvic Colon, page 611. 1902.

the third stage. The quantity is much in excess of the normal secretions from the rectum and may be due to "reflex hypersecretion consequent upon the irritation and congestion of the mucous coat when constant protrusion is present."[3] This causes very great discomfort to the patient by adhering to the underclothing, and in many cases the peri-anal skin becomes irritated by the constant escape of mucus.

Diagnosis. — The diagnosis of both varieties of hemorrhoids is comparatively easy, and yet every known tumor which occurs around the ano-rectal region has been called hemorrhoids, and they have been often confused with other rectal diseases which are accompanied with hemorrhage and pain. The diagnosis of the external and externo-internal varieties can readily be determined by inspection.

In most cases of the internal variety there is no external evidence of the disease, and an attempt to examine the anal canal with a bivalve speculum is usually unsatisfactory, because when the blades are open the pile tumors are flattened out. The same condition obtains when a fenestrated glass speculum is used.

A good way to locate hemorrhoids when no protrusion is present is to give the patient a small enema of glycerin and water, which causes straining and engorgement of the tumors; then, by everting the anal canal, the hemorrhoids are brought into view.

Hemorrhoids can be distinguished from villous growths by the broad base of the latter, their slow growth, spongy feeling, bright color and frequent hemorrhages.

Malignant growths occur as hard, nodular growths on the side of the rectal wall; they grow larger and break down.

Venereal warts can be distinguished by their number and circumscribed location; they are soft, pedunculated, fragile, bifurcated and give off a disagreeable odor.

Pruritus ani is frequently called "itching piles." This condition is not a condition of hemorrhoids — there is absence of both tumor and hemorrhage — and is usually due to some irritating rectal discharge, seat worms, ulceration in the anal canal, enlarged papillæ, neurosis, or eczema of the skin. In many cases of hemorrhages, where no hemorrhoids can be found, bleeding is due to ulceration, injury or fissure. Because of protrusion, procidentia recti and polyps have been mistaken for hemorrhoids. The polyp is recognized by its pedicle, and the rectal prolapse by its even protrusion, color and soft, velvety feeling.

Prognosis. — The prognosis of hemorrhoids is always good, if the condition is recognized and intelligently treated.

Treatment. — The treatment of hemorrhoids is both palliative and operative.

The palliative treatment of the cutaneous variety consists in regulating the bowels, cleansing the region frequently with hot water, adjusting the clothing so that it will not irritate the parts, and the use of ointments or powder containing zinc oxide or carbonate of bismuth and camphor. This method is rather unsatisfactory and slow.

The operative treatment is simple and the results are sure; it consists of the removal of the tags or hypertrophied folds of skin, under local anesthesia, with the scissors, the excision being made at about one-eighth inch above the base. This allows the sides of the resulting wound to come together without causing much contraction of the anal skin, and there is no discomfort to the patient after the first few hours. This should be dressed with a sterile pad of gauze, held in place with a T bandage, and the wound kept clean and dusted with some antiseptic powder until healed.

In cases of the thrombotic variety, where the skin over the clot is not tense and where inflammation is not present, the palliative treatment is often successful. A soft movement of the bowels should be secured once or twice daily, by the use of the compound licorice powder at night, or a mild aperient, as sulphate of magnesia, Carabana or Hunyadi water before breakfast. The patient should be kept quiet and in the recumbent position for the first few days, and the lead and opium wash U. S. P. should be applied continually to the anal region by means of a thick pad of gauze, which should be moistened frequently during the first few days, and then less frequently until complete absorption of the clot takes place. The operative treatment of this variety of hemorrhoids is much quicker in results than the above method. It removes the clot at once; it can be done at the office painlessly, and, in the writer's experience, pain and soreness disappear immediately, and the condition is less troublesome to the paitent, for he is able to assume his business and social obligations. It consists in making an incision into the tumor and turning out the clot under local anesthesia. The incision should be made in the center of the swelling, beginning at the outer margin and in a line radiating from the anal canal. After the clot is removed, the cavity should be packed with a small piece of gauze, which should be allowed to remain twenty-four hours and should not be renewed. The wound should be cleansed daily and stimulated with a 10% to 15% solution of ichthyol in glycerin, or dusted with aristol or some similar antiseptic powder.

The palliative treatment of internal hemorrhoids is often successful in the incipient stages. The exciting causes should be removed as far as possible, *i. e.*, constipation should be relieved, any urethral, prostatic, pelvic or other diseases attended to; the diet should be restricted, and the use of condiments and stimulants should be prohibited; the external parts should be kept clean, and the patient should be kept in the recumbent position. If there is strangulation, spasm of the sphincter and pain, the application of the ice bag to the parts, or applications of hot water compresses or hot poultices give relief. Suppositories containing morphine, cocaine or eucaine may be used if needed. In cases where there is

[3] Goodsall and Miles, Part I, p. 281. 1900.

much hemorrhage, a thin strip of gauze moistened with weak solution of nitrate of silver (2% to 4%), or 10% solution of ichthyol in glycerin, or 50% solution of balsam of Peru may be placed in the anal canal, where it should be allowed to remain several hours, or the bleeding points may be cauterized.

In some cases a suppository containing extract hyoscyamus gr. 2; ext. belladonna gr. ⅛ to ¼; iodoform gr. 1; oil eucalyptus gtt. 1, with or without morphine gr. ¼ to ½, according to the amount of pain present, has given temporary relief, as has also an ointment containing cocaine hydrochloratis gr. iii; sol. adrenalin chloride ℥ss; bismuth sub carbonatis gr. x; vaseline ℥i, applied by means of a hard rubber pile pipe morning and night and after stool.

In most cases an operation becomes necessary eventually.

The operative treatment of internal hemorrhoids is the more satisfactory to both patient and physician, and with the recent introduction of local anesthesia in the treatment of ano-rectal diseases, the discomfort is not as prolonged as when the palliative measures are used, and an immediate, permanent cure can be obtained.

The operations practised oftenest are the clamp and cautery, the ligature, the excision and the injection methods. Many other operations have been suggested and have met with more or less favor, such as sub-mucous ligation, divulsion of the sphincter muscle, removing by écraseur, or the wire loop, puncture or linear cauterization by means of caustics or the galvano-cautery, and excision and suture of the wound. Probably the most popular methods in use to-day are the clamp and cautery and the ligature methods.

Dr. S. G. Gant, of New York, favors the clamp and cautery operation when a general anesthetic is given,[4] while Goodsall and Miles practise the ligature method almost exclusively at St. Mark's Hospital in London.[5]

The excision method, known as Whitehead's operation, in which the entire pile-bearing area is excised and the rectal mucous membrane is sutured to the skin at the anal margin, is a very difficult operation to perform successfully, and many grave complications and conditions have resulted from this method, such as incontinence, ulceration, stricture, abscess, proctitis and other forms of rectal disease.

Earle's modification of Whitehead's operation is one of the most reliable and safe methods when a complete excision of the pile-bearing area is desired.

In operating after this method the skin is caught at each quadrant of the anal orifice, just at the white line of Hilton, with hemostatic forceps, and with them the skin and mucous membrane are pulled down. This brings into view any hemorrhoids which may exist, when they are also caught with hemostats and drawn well down. An incision is made at the center of the anal orifice posteriorly, sufficiently deep to allow Earle's clamp forceps to be applied at right angles to the long axis of the rectum, and at the same time to include in the forceps the amount of tissue to be removed from this part of the anal canal, care being taken to include more mucous membrane than skin. Before applying the clamp forceps, the first two stitches to draw together the skin and mucous membrane should be taken at the bottom of the incision. With forceps now applied and held in position, the tissue above the forceps is cut away and a running suture is made by passing it first under, then over, the forceps until the end of the forceps is reached, when the forceps are withdrawn and the suture is made taut. Another similar bite of the redundant tissue is taken until the entire hemorrhoidal area is removed.[6] Of course, a general anesthetic is necessary, and the patient must be confined to bed for several days.

There is another method of excision practised by some surgeons, in which an elliptical incision is made sufficient to remove the tumor; the edges of the incision are sutured and healthy strips of mucous membrane are left between the points of incision.

There are many advocates of the injection method, and, in the hands of some surgeons, good results have followed this line of treatment. It consists of the injection of caustics, astringents or antiseptic fluids into the hemorrhoidal tumor, and it is claimed that a cure results with but little pain, without causing detention from business and without the use of a general anesthetic. Most of the prominent rectal surgeons who have given this method a thorough and complete trial agree that although cures are occasionally obtained, yet in most instances the method is unsatisfactory in that the relief is only temporary, and because the injection of carbolic acid and similar agents may produce much pain, inflammation, swelling, extensive sloughing, abscess, fistula, phlebitis and resulting absence from business. Cases of death from embolism have been reported as a result of this method.

Most surgeons insist that patients suffering with hemorrhoids shall give up all social and business engagements and take a general anesthetic for the purpose of having them removed, no matter what the number, size or condition of the hemorrhoidal tumors. In many cases this is unnecessary, for nearly all uncomplicated cases of hemorrhoids of whatever variety can be radically operated upon in the office or at the patient's home, under local anesthesia, with very little pain or discomfort and but slight, if any, interruption in the daily habits and engagements of the patient.

The use of local anesthesia in the ano-rectal region has been the subject of much discussion among the most prominent rectal surgeons during the last two or three years. There have been many advocates of cocaine, eucaine or stovaine and ethyl chloride as being suitable agents, with which local anesthesia of this region could be

[4] Gant: Diseases of Rectum and Anus. 1902.
[5] Goodsall and Miles, Part I, p. 288. 1900.

[6] Taken from lectures by Professor Earle at Baltimore Medical College during course, 1895–96.

secured. The degree of anesthesia produced by these drugs is very satisfactory and it admits of a sufficiently long operative period, but their use is frequently followed with toxic effects. There is distinct shock and always considerable bleeding, and often prolonged post-operative pain.

In the spring of 1903, Dr. S. G. Gant [7] reported a series of several hundred cases of ano-rectal diseases, in which he had used the injection of sterile water into the tissues to secure local anesthesia. Since that time nearly all of the prominent rectal specialists and many other surgeons have tried that method, and after becoming familiar with the technic, have been favorably impressed with the results.

During the past eighteen months the writer has operated upon 23 cases under sterile-water anesthesia, and upon 16 cases with the combined use of ½ of 1% eucaine in 2% boric acid solution and sterile water. By the combined use is meant the use of the eucaine solution to anesthetize and secure divulsion of the sphincter muscle, and the use of sterile water to anesthetize the hemorrhoidal tumor before ligation.

The technic of the ligature operation for the radical cure of hemorrhoids under the combined use of eucaine solution and sterile water is as follows:

The patient is given an enema of one pint of warm water to clean out the rectum; then a small enema — four to six ounces — of equal parts of warm water and glycerin is thrown into the rectum, the passage of which causes straining and a resulting engorgement of the hemorrhoidal tumors. The external parts are scrubbed and made as aseptic as possible; then the eucaine solution should be used to anesthetize the sphincter muscle. A sufficiently long anesthetizing needle should be used, and one point of entrance selected in the median line at 1 to 1½ inches from the posterior anal margin. With one finger in the anal canal as a guide, the needle can be directed along either side of the anal wall, thus anesthetizing the muscle thoroughly. The sphincter should be carefully divulsed when the engorged hemorrhoids are brought into view. These are now anesthetized with warm sterile water; the need'e point is thrust into the center of the tumor and the water is slowly forced into the tissues in sufficient quantity to distend them until they are of a glassy, white appearance, when anesthesia is complete. The pressure exerted upon the terminal nerve filaments is sufficient to prevent cutting pain, although some patients complain of discomfort for a moment, due to distention, which is entirely relieved as soon as the tissues are cut. The tumor can now be grasped with a hemostat and pulled down. A U-shaped incision is made at the muco-cutaneous junction, and a stout linen or silk ligature is placed around the entire tumor and is securely tied. The part outside the ligature is excised, care being taken to leave a stump of sufficient size to prevent slipping of the ligature, or when the tumor is very small it can be left to slough. This method should be followed until all of the hemorrhoids have been ligated. Then a thick, wedge-shaped pad of gauze should be applied firmly to the ano-rectal region under a T-bandage. Laxatives should be given to produce a semi-solid stool each day. The anal canal should be cleansed thoroughly, and an application of 10% solution of ichthyol in glycerin, balsam of Peru 50%, or 2% to 4% solution nitrate of silver made daily until sloughing is completed and the resulting ulceration healed.

The points in favor of local anesthesia in the operative treatment of hemorrhoids are many. It is safe and effective; it can be easily and quickly applied; it simplifies the work and takes away the fear which most people have of taking a general anesthetic. Pain at the time of the operation is rare. Post-operative pain is less than under the old methods, and is very slight when sterile water is the agent used. The period of detention from business is greatly reduced and often patients can go about their usual occupations, as confinement to bed is not an absolute necessity. It affords relief in some cases otherwise unsuitable for an operation, and takes many cases from the hands of the quack and itinerant. It enables the operator to secure permanent results and, if properly applied, admits of as thorough and complete work as can be done under a general anesthetic.

[7] N. Y. Med. Jour., April 18, 1903.

STUDIES IN PSYCHOPATHOLOGY.

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(Concluded from No. 14, p. 434.)

XII. CASE OF INSISTENT STATES WITH SUBCONSCIOUS TRANSFORMATION OF PERSONALITY.

SHERMAN, age thirty-one. Russian. Father is very nervous; mother is also nervous and suffers from severe headaches, so does his sister, who is otherwise quite well. Physical examination is negative; reflexes are normal; memory, attention, recognition, are good; no sensori-motor disturbances.

Patient suffers occasionally from severe attacks of headache accompanied by vomiting; he has very depressing nightmares and cries out in his sleep. He is very timid and keeps away from company, communing with himself. In his childhood patient made the round of child diseases. He is physically well, but rather slightly built. Patient is very religious and has "never masturbated." About the age of eighteen he developed contrary thoughts in regard to God; he could not pray without associating in his mind the words of the prayer with filthy words and curses. Unaccountable fears took possession of his mind. At the same time sexual desires became developed and his mind began to associate them with all kinds of improper relations, even with his sister and with his mother. He is very miserable about these ideas as he is very religious, and the thoughts are not only repugnant to him, but simply torture him by their very presence. Since last year the patient has become worse, — his sexual and contrary religious ideas have become more insistent.

The insistent ideas have gained such a hold on the patient that he is distracted with mental anguish, with intense pangs of conscience. He can carry on the work of cigar making with great difficulty, and when he comes back from his work, he sits all by himself and is not doing anything, avoids company and keeps on brooding. Occasionally he gets irritable, cries and claims that the "evil one" has gotten possession of his heart and conscience. He is very nervous, suspicious and gets easily frightened. The mental anguish and the struggle with the insistent "evil" ideas become at times so acute that the patient is like one "crazy," yells and screams like one possessed. Occasionally he experiences the sensation of some one pulling at his clothes. When on the point of falling asleep he hears "evil" voices. At night, when on the point of waking up, he is tortured by fearful nightmares, cries and moans before he can arouse himself, or be aroused. Patient wants to leave the city, wants to get away from himself, wants to commit suicide. What keeps him back is his intense religious belief. The insistent sexual ideas have taken such a hold on his mind that patient is afraid to remain alone with his sister and even with his mother.

In one of our conversations the patient was asked the reason why he troubled himself about the thoughts when he was fully conscious that they were but nonsense, he replied: "I cannot help it; my head gets depressed and heavy; I should prefer to be in hell than to have this kind of nonsense. When I have these ideas my head is dark; all looks dark. When I attend to my natural wants I think of God and associate Him with it to anger Him. When I spit, for instance, I cannot help thinking 'I spit on God.'"

Patient has bad nightmares. He feels that something is lying on him and pressing him; he is afraid of death. He has his eyes open, but he cannot move. On falling asleep, or rather when he finds it difficult to fall asleep, he can hear voices distinctly. The voices talk to him as one man to another; he cannot remember what the voices say. He can hear the voices near the ear, not inside. When patient walks in the street "dreams come to him," then he seems to wake up and does not remember anything. When he goes to bed he talks to himself and is even conscious that he answers questions. When he wakes he sometimes is under the impression that the "evil one" has gotten a firm hold on him. There is some one, the evil one, who laughs and jeers at him.

When a boy of fifteen, he used to have very vivid dreams, could hear steps of "spirit people" in the room. He used also to be frightened by shadows, a fear which dates far back to his early childhood. When about the age of twenty he was pursued by the idea of death, though not of suicide, represented to himself the angel of death very clearly, and the fear made him feel faint. Last summer, to counteract the sexual thoughts and excitement, he attempted to revive the image of the angel of death in order to feel faint, but he did not succeed.

About six years ago patient worked on the sewing machine; one day he suddenly lost the power of movement in the legs. This paralysis lasted three days. He improved and went to his work. Two years ago patient suddenly lost the use of the right hand and right leg. It was not so much an actual paralysis as an intense pain in moving the leg and hand. He could not raise the elbow and dragged the leg. This lasted from April, 1900, to February, 1901. A year ago a young girl came to visit the family and was placed to sleep in the adjoining room. This developed an intense sexual excitement, with thoughts of sexual character. When this developed, the pain and paralysis ceased. One was substituted for the other. When one trouble began, the other disappeared. The sexual thoughts are accompanied with "burnings" which cause the patient great sufferings. These thoughts come periodically. The evil and "nonsense" thoughts are almost always present and give him no rest. Patient feels dazed; does not know where he is, what he is doing, whether he lives at all. Everything is "like nonsense." His hypnagogic and hypnapagogic hallucinations consist of very ugly faces of women, of images of women without hands and feet and of other grotesque visions. The insistent ideas are somewhat like "voices," — they call him names, they laugh at him, at his religious beliefs, at all that he regards as moral and sacred. He feels that there is another person in him that instils in his mind those evil ideas against everything that is holy. The more he fights the more that evil person confuses his thoughts with "unholy ideas," and finally even paralyzes his body. Patient can read well "profane writings," such as newspapers, novels, but a religious book, and especially the scriptures, awaken in him the evil one who makes him suffer untold agonies, intolerable pangs of conscience.

I may add the following interesting letter written to me by the patient:

"I give a short account of my life so as to help the doctor to form an idea of my condition. I hope you will pardon me for putting you to so much trouble.

"In my early childhood and youth I suffered a good deal and many times I had to go without food. When I was about fourteen, I lost two brothers, one younger and one older than myself. The younger brother, a boy of three, I used to take care of and instructed him. I loved him more than my own life. Besides, my parents were at that time in very bad circumstances. I was greatly upset and felt deprived of bodily and mental strength.

"I began at that time to learn the trade of jeweler but as my mind was very weak I could not do the work, and after ten months of great suffering I fell sick and had to give up the work altogether.

"I then obtained a position as clerk in a small store and had trouble. I have suffered greatly and still continue to suffer. You can see, therefore, that up to the time of my coming to this country I have suffered greatly and still continue to suffer.

"I shall now describe the silly, evil thoughts that torment me so fearfully.

"When I was eighteen years old it suddenly occurred to me to curse the Creator. The curses were awful. Since then my *personality has changed*. Intense sexual passion took possession of me with frequent nocturnal emissions. Confusion came into my mind. Evil thoughts got hold of me. I began to substitute contrary sentences; thus, instead of 'The earth is full of His glory,' I substituted 'The earth is full of his filth.'' During prayer these thoughts would come to me. The most indecent filthy thoughts would come to torment me. I would cry for hours and struggle against them, but of no avail. The more I tried to drive those thoughts from my mind, the more persistent and unholy would they become. Since then I have become depressed and melancholy. I have lost all desire for life. I feel as if I would like to go into a desert and there die. I want to live and have a quiet undisturbed mind. I am a human being; I cannot hide myself. I have eyes and ears, but everything I see and hear is transformed into evil.

"I cannot undertake to describe all the bad thoughts that enter into my mind. If you could drive all this nonsense from my mind without weakening my love for my people or my religion, if you could bring it about that I could read the Bible without changing the

thoughts into evil and my mind should be clear, you would save my life. Oh! if light should dawn upon me and my mental darkness should disappear!

"I have confessed to you everything, more than I would to my father and mother."

The condition of this case can be understood in the light of the patient's childhood, revealed by means of various intermediary states and by means of indirect inquiry of the patient's parents and sister. The patient passed his childhood and youth in extreme poverty and misery, in the midst of social, political and religious oppression. Living from his very babyhood in misery, extreme poverty and squalor, often enduring cold and the pangs of hunger, surrounded by disease, sufferings, pains due to starvation, by sickness and death of those near and dear to him, the patient, with all his natural intelligence, had been fostered in the strict religious belief of a beneficent Providence. The contrast between the ideal Providence and the real misery was too great. With all his needs, desires and instincts suppressed, thwarted and mocked at by the merciless conditions of life, subconscious protests began gradually to form in the patient's mind; the protests, gathering force, finally burst forth with the crisis of adolescence. It was a protest of subconscious mental activity against a life of misery hallowed by religion. It was the protest of the subconscious against the teachings of religion, a subconscious revolt against Providence and all the religious and moral institutions. Out of the chaos of discordant, dissociated elements we see the formation of an ill-shaped, maimed, but defiant subconscious secondary personality of nihilistic tendencies, — a state through which his country and countrymen are now passing. We witness here a struggle full of anguish and agony between a shattered personality and a newly-forming self out of a chaotic disaggregated subconsciousness. Like the demoniacal possession of the Middle Ages, it is the reading of the sacred scriptures that throws the patient into a condition of distress and of inner combat of the discordant elements. The patient is not fully aware of the why and wherefore of the "pangs of his conscience," but still he seems to have some dim suspicion of the nature of his malady, when he asks for help "without weakening my love for my people and my religion." The patient's condition is the agony of a mortally wounded self struggling against the merciless onslaughts of a pitiless, nihilistic secondary self forming out of chaotic states of a disaggregated subconsciousness.

XIII. THE MOMENT THRESHOLD AND DYNAMOGENESIS.

In concluding this paper it may be well to point out some principles, important in many respects, but which at the present moment are of interest from a psychopathological as well as from a practical therapeutic standpoint.

Living tissue can only be set into activity by stimuli of certain minimal intensity; should the stimulus fall below that minimal intensity, the living protoplasm will not react. This holds true of all cells, from the lowest to the highest, — from the bacterium and infusorium to the highly differentiated cell, such as muscle cell or neuron. The reaction of the living protoplasm to the stimulus shows the irritability or sensitivity of the cell. This sensitivity has its physiological threshold, so that a stimulus falling below a certain intensity cannot call forth any reaction in the cell. The rise or fall of the threshold would mean an increase or decrease of the minimal intensity of the stimulus requisite to bring about a cellular reaction. By varying the conditions of sensitivity, such as mechanical, thermal, electrical, chemical and nutritional, the physiological threshold can be raised or lowered. The same holds true of a whole psychophysiological system,—there is a threshold of sensitivity below which the minimal stimulus cannot fall, the latter will not awaken any reaction in the system. All the senses reveal the presence of such thresholds which are also present in the case of all the higher psychophysiological systems. If we term the stimulus which can just bring about a reaction in the system the stimulus threshold, we can say that a given system can only be thrown into activity by a stimulus rising in intensity above the stimulus threshold. Intensity of stimulus, then, is an indispensable condition of the functioning of a psychophysiological system.

In highly differentiated cells, however, it is not only the quantity or intensity of the stimulus that is to be considered, but also the quality. The visual sense organ is not affected by auditory stimuli nor can the auditory sense organ be affected by visual stimulations. Similarly, in the functioning of the higher psychophysiological systems the quality of the stimulus should not be overlooked. Systems that remain inactive under one set of stimuli, however intense, will respond to another set of a different quality. The same holds true of that synthesis of mental systems which we term moment consciousness. To set the moment into activity, the moment threshold must be passed, and not only the intensity of the stimulations should be taken into consideration, but also the qualitative aspect of the stimuli. Ideas, emotions and feelings which apparently remain dormant at the action of one set of excitations will respond readily to the action of excitations of a different nature. Habits, habitual movements, habitual thought, depend entirely on the qualitative character of the excitations, on the combinations of special objects, circumstances and times. It will take too much place to develop here this principle, as we expect to work it out in full elsewhere. Meanwhile, we can simply point out here that the quality of the stimulus is one of the important factors in the activity of a psychophysiological system, or of a moment consciousness.

Besides those two factors of intensity and quality, another factor, that of inhibition, plays quite a *role* in the variations of the threshold. We are acquainted with inhibitions in physiology, such, for instance, as the inhibitions exercised by the pneumogastric nerve on the heart, or the arresting of the activity of glands or of the peris-

talsis by the stimulation of afferent nerves. We know also of central inhibitions, such as fear, distress, pain, acting as so many inhibitions on the peripheral organs and serving to arrest functioning activity. Similarly in mental life, complex as it is, the highly organized psychophysiological systems, with their concomitant moments consciousness, still fall under the same general physiological laws of inhibition. In the course of associative activity systems and moments become organized into more complex groups, into more complicated systems or constellations of systems which, to maintain their functioning equilibrium, keep one another in check or under inhibitions. Such a formation of checks and inhibitions is just what takes place in the training and the education of the individual and the race. Every psychophysiological system or moment entering into relations with other systems and moments is bound in the course of its associative activity to form inhibitions to its function by the direct influence of external or internal excitations. In other words, there is a rise of threshold due to inhibitory associations.

Inhibition and rise of threshold may also result in a different way in the process of association. We may possibly lay it down as a law, which plays no small *role* in the interaction of systems and moments, that in a series of aggregation of various systems or moments, forming a more complex organized whole, due to association and synthesis of the component systems, having various thresholds, the ones having the higher thresholds will raise the thresholds of the moments having a greater sensitivity. This, however, may be counterbalanced by the lowering of the moment threshold by associations with moments of great sensitivity, that is, with low moment thresholds

While on the one hand the inhibitions and the consequent rise of threshold go along with the complexity of systemic structure and as well as with the increase of associative activity, both in extension and intension, there is at the same time an advantage gained for the system, inasmuch as it really has now more chances to become active, on account of the greater number of systems with which it has become associated. The threshold of the associated system rises, but on the other hand, the chances for activity increase, while the liberation or discharge of energy with the consequent evil effects of extreme fatigue, exhaustion and ill-nutrition are checked and guarded against by the inhibitions and the rise of threshold.

What happens now when a psychophysiological system becomes dissociated? The inhibitions become removed and the threshold falls. The system is no longer checked by inhibitions or by other systems, and hence, with a lowering of the threshold, becomes sensitive, reacting to any slight, passing stimulus, manifesting or liberating all the energy it possesses until fatigue and complete exhaustion set in. From this vantage ground we can understand the fact of the extraordinary energy which the dissociated subconscious systems manifest, so much so that the unusual energy appears almost supernatural and has on that account been ascribed by the superstitious to diabolical possession.

To quote from a former work of mine:

" When a system present in the upper personal consciousness is to be disintegrated, the suggestion given should be kept out of the patient's personal memory. One can observe this fact clearly in post-hypnotic suggestions. If a post-hypnotic suggestion is fully remembered, it usually miscarries, — the suggestion loses its efficacy and often comes up as a word-memory without the stringency of realization. When, however, amnesia is enforced, the post-hypnotic suggestion is fully realized. A dissociated system present in the subconscious, when coming to the surface of the upper strata of consciousness, becomes manifested with intense sensori-motor energy. *Dissociation gives rise to greater dynamogenesis.* This principle of dynamogenesis is very important, and cases of so-called impulsive insanities and ' psychic epilepsy ' are really due to this cause.

" A system entering into association with other systems is set into activity, not only directly by its own appropriate stimuli, but also indirectly through the activities of the various systems associated with it. These associative interrelations bring about an equable and normal functioning activity, controlled and regulated by the whole mass of associated systems. The mass of associated systems forms the ' reductives ' of each individual system. In dissociated systems the controlling influence of the ' reductive mass ' is lost and the result is an over-activity, unchecked by any counteracting tendencies.

" This relation of *dissociation* and *dynamogenesis* is closely related to *periodicity* of function, with its concomitant manifestation of psychomotor activity characteristic of all passions and periodically appearing instincts. Dissociated systems present impulsiveness, because of lack of associated counteracting systems. The only way to diminish the overpowering impulsiveness with which the dissociated subconscious systems make an onset in their rush into the personal consciousness is to bring about an association, to work the dissociate systems into the tissue of the patient's consciousness.

" Physiologically, it may be said that a neuron aggregate, entering into association with other aggregates and being called into activity from as many different directions as there are aggregates in the associated cluster, has its neuron energy kept within the limits of the physiological level.[6] A dissociated neuron aggregate, on the contrary, is not affected by the activity of other aggregates; it is rarely called upon to function and stores up a great amount of neuron energy. When now an appropriate stimulus liberates the accumulated energy, the activity is overwhelming and is very much like the eruption of an underground volcano, giving rise to temporary attacks, to ' seizures ' by subconscious states of the whole field of the upper consciousness, — ' seizures ' which, being really of

[6] See Sidis, Psychopathological Researches: also Neuron Energy and its Psychomotor Manifestations. Archives of Neurology and Psychopathology, 1898.

the nature of post-hypnotic automatisms, are generally mistaken for epilepsy, the attacks being regarded as epileptic manifestations, as 'larval epilepsy,' as 'epileptic equivalents,' as 'psychic epilepsy.' With the restoration of the equilibrium of the neuron aggregate, with the synthesis of the associated systems, a synthesis which can be brought about by different methods, the subconscious eruptions, the attacks, or 'seizures' vanish, never to return."[7]

XIV. THE PRINCIPLE OF RESERVE ENERGY.

We have pointed out the significance of inhibitions in keeping back the systemic neuron energy from fully being discharged under normal conditions of life, and we have also shown that the removal of inhibitions results in the full liberation of the accumulated neuron energy. This fact, so striking in the domain of recurrent psychomotor states, almost forces itself on the attention of the student of abnormal psychology. From such a fundamental fact of abnormal mental phenomena, we may draw some conclusions in regard to mental life in general. For, after all, the laws of pathology do not differ from those of physiology in general, the pathological really being the physiological under special conditions. The normal is either the usual, the habitual, the customary, or is, at best, an ideal construction of the variations of life more or less successfully adjusted to the conditions of the external environment. This adjustment, however, keeps on constantly shifting ground, continually changing the relative position of the normal and the abnormal. From this standpoint pathology is of the utmost importance in the study of organic life. The pathological being the normal out of place, the so-called normal under special conditions, pathology that deals with the abnormal gives us a deep insight into the general laws of normal physiological activity. All the experiments in physiology consist practically in the production of so many pathological conditions and states. When the physiologist makes injections, sections and stimulations by various agencies, what else does he effect if not the production of the pathological, in order to learn the physiological action of the various tissues and organs? In our psychopathological study we have really followed the interrelations of mental phenomena under special conditions; it is the physiological method of experimentation by production of pathological variations; the conclusion arrived at in psychopathology should apply to mental life in general. What is this conclusion? It is the principle of potential subconscious energy or, more briefly stated, *the principle of reserve energy.*[8]

The moment thresholds of our moment consciousness, or, put in physiological terms, the thresholds of our psychophysiological systems, are usually raised, mental activity working in the course of its development and growth of associative processes under ever-increasing inhibitions with ever-higher thresholds. It is enough to compare the educated, the civilized, with the uneducated or with the barbarian and the savage, to realize the truth of our statement reached from a study of psychopathological facts. On account of the threshold and inhibitions, not the whole of the psychophysiological energy possessed by the system or moment is manifested; in fact, but a very small portion is displayed in response to stimuli coming from the habitual environment. What becomes of the rest of unused energy? *It is stored, reserve energy.*

Biologically regarded, we can well see the importance of such stored or reserve energy. In the struggle for existence, the organism whose energies are economically used and well guarded against waste will meet with better success in the process of survival of the fittest, or will have better chances in the process of natural selection. The high thresholds and inhibitions will prevent hasty and harmful reactions as well as useless waste of energy, unnecessary fatigue and states of helpless exhaustion. Moreover, natural selection will favor organisms with greater stores of reserve energy which could be put forth under critical conditions of life. In fact, the higher the organization of the individual, the more varied and complex the external environment, the more valuable and even indispensable will such a store of reserve energy prove to be.

The course of civilization and education, by continuously raising the thresholds and inhibitions, follows the line of natural selection and keeps on increasing the disposable store of potential subconscious or reserve energy both in the individual and the race. It is in this formation of an ever-greater and richer store of disposable, but well-guarded, reserve energy, that lies the superiority of the educated over the uneducated and the supremacy of the higher over the lower races.

Civilization and education are processes of economy of psycho-neural force, savings of mental energy. But what society is doing in a feeble way natural selection has done far more effectively. What education and civilization are doing now on a small scale and for a brief period of time the process of survival of the fittest in the ever-raging struggle for existence has done for ages on a large scale. We should, therefore, expect that the natural reserve energy would far exceed that of the cultivated one. The brain and mind of the ancient German differed in nothing from his modern descendant, the German professor, and still what a difference in the manifestation of mental energy. The savage brain and mind do not differ from those of their civilized descendants, and still what an ocean of mental life separates the civilized man from his savage progenitor.

It is against the evidence of biological sciences to suppose that the acquisitions of the cultivated brains have actually been transmitted from generation to generation. It is not likely that

[7] See Sidis, Psychopathological Researches, ch. "Dynamogenesis and Disintegration."

[8] When this paper was already in the hands of the editor, Prof. William James sent me his article, "The Energies of Men," in which he developed a similar point of view, though on widely different lines. Nothing gives me more pleasure than to find myself in accord with the great American psychologist and philosopher.

acquired characteristics brought about by social life will change so radically the brain in the course of some forty or fifty generations that separate the civilized man from his savage progenitor, and the trend of biological evidence hardly favors the transmission of such acquired characteristics.

"There sits the savage," once exclaimed an eminent pathologist, "with three quarters of his brain unused." Yes, there sits the savage with a brain far surpassing the needs of his environment, harboring powers of a Socrates, Plato, Aristotle, of a Shakespeare, Goethe, Darwin and Newton. The ancient German and Briton hardly differed in their mental powers from their contemporaries, the civilized Egyptian and Babylonian. What, then, did those Aryan savages do with their richly endowed mental energies? Nothing. The mental energy was lying fallow,— it was reserve energy, — energy for future use, for the use of future ages of coming civilization.

But what about the cultivated man? Does he suffer from neurasthenia, from nervous impotence, because, as some would have it, on account of the strain of civilized life he has exhausted his store of nervous energy? One may well ponder over the significant fact that it is the neurasthenic, the "psychasthenic" who is doing the world's work. We must remember that civilization is but of yesterday and that the reserve energy is hardly touched upon.

In the treatment of the phenomena of psychophysiological dissociation, in the protean symptoms of nervous and mental exhaustion we should not forget this biological principle of reserve energy and should make attempts to use it. In many cases the inhibitions become too heavy and the thresholds too high. We must loosen the grip of some of the inhibitions and lower the thresholds, thus utilizing a fresh supply of reserve energy.

It is certainly a great pity that the medical schools have until now ignored the whole domain of psychopathology and have left psychotherapeutics in the hands of the superstitious and the unscrupulous, — of the mental healer and Christian scientist. Medical colleges are justly proud of their laboratories, but thus far not a single medical school has considered it important enough to establish a psychopathological laboratory. Is the study of the phenomena of abnormal mental life of little or no consequence to medical science?

Unusual combinations of circumstances, great radical changes of the environment, often unloosen the inhibitions and, overstepping or lowering the thresholds, release some of the reserve energy. Critical periods, great dangers, wars, revolutions, often make man rise to the occasion, so that apparently insignificant and worthless individuals display an energy unforeseen and unsuspected and which makes of them heroes and heroines. There is a rise in intensity and a qualitative change in the stimuli, an unloosening of some of the inhibitions with a consequent release of some of the bound-up reserve energy.

In this respect wars and revolutions may be regarded as important factors in the manifestation of human potential energy. The Persian and Peloponnesian wars unloosened some of the energies of Greece, giving rise to great thinkers, scientists and artists, having a lasting influence on the destiny of humanity. The constant wars and national misfortunes of the Jews released their reserve energy and made of them a race of prophets, apostles and martyrs, deeply affecting the course of human civilization. What about the wars of the Reformation, with which opens the new era of the free development of modern European civilization? What about the English, American and French revolutions which have released new supplies of energies and have opened a new arena for the free development of political, social and industrial forces? In our own times we meet with the example of the Japanese, who, under the strain of great national danger, have released a reserve energy unsuspected in races of the Mongolian stock.

Reserve energy becomes manifested under the influence of radical changes in the environment, just as we have found that psychophysiological systems react and start into function under the influence of special conditions and special appropriate qualitative stimuli. In the therapeutic treatment of functional nervous and mental diseases, in the treatment of neurasthenia, or psychasthenia, hysteria and insistent or recurrent mental states, the physician should fall back on this natural stored-up reserve energy. I find this principle specially successful in my treatment of so-called functional and habit psychoses, in various forms of insistent psychomotor states, in the whole domain of mental dissociations, and in cases of alcoholism where an almost complete moral transformation of the personality is observed through the liberation of some of the patient's subconscious reserve energy.[9]

The method of hypnoidization with its induced hypnoidal states may help out in reaching this source of reserve energy. The hypnoidal states, being intermediary in character, form a common meeting ground of the conscious and the subconscious, and it is in these states that we often can catch glimpses of the individual's stored-up energy. By means of special qualitative stimuli and by the reduction of the inhibitions and of the moment thresholds we are able to utilize energy out of the patient's reserve energy for the re-establishment of disturbed inner relations and dissociations. The Hanna case as well as many other cases have been practically treated by me on this principle by means of the hypnoidal or intermediary states. Most of my work is now being carried out on these lines. The hypnoidal states may be modified, the methods of their induction may be varied, and again the whole method of treatment may be carried out on different lines, according to the nature of the case and character of the individual, but all the variations in the method of treatment are based on one fundamental principle, — the principle of reserve energy. For, as one studies mental life with its

[9] The principle of reserve energy is of great importance in education. I hope to work out this subject elsewhere.

infinite variety of mental dissociations and subconscious activities, one becomes more and more impressed with the fact that beyond the psychophysiological limits of energy, available for the habitual adjustments to the ordinary external conditions of life, there is a vast store of reserve energy whose depths one cannot gauge, — but

"Aus dem Kelche dieses Geisterreiches
Schäumt ihm seine Unendlichkeit."

Book Review.

Extra Pharmacopeia of Martindale and Westcott. Revised by W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.B. Lond., D.P.H. Twelfth edition. London: H. K. Lewis. 1906.

The twelfth edition of this volume, although an addition of over two hundred and fifty pages has been made, bringing the pages up to ten hundred and forty-five, appears as a book which may easily be carried in the pocket. The subject matter has been brought down to the time of publication through reference to current literature in relation to therapeutics and to organic and inorganic pharmaceutical chemistry. The book is certainly of much value for purposes of reference, and in spite of its small size contains a large amount of information.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. WITTHAUS, A.M., M.D., Professor of Chemistry, Physics and Toxicology in Cornell University, and TRACY C. BECKER, A.B., LL.B., Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo, with the aid of eighteen collaborators. Second edition. Vol. I. Pp. 996. New York: William Wood & Co. 1906.

The first volume of the second edition of this monumental work is in our hands. Although under the immediate editorial supervision of Dr. Witthaus and Mr. Becker, the book is really a composite product, as shown by the fact that there are eighteen collaborators in addition. This series of books aims to give a comprehensive account of the relation of medicine to the law, of the rights and duties of medical witnesses and of the various circumstances in which the medical and the legal profession come in contact. The first volume concerns itself with an historical introduction, a table of cases cited in the volume, a discussion of medical jurisprudence in its various aspects, forensic medicine and matters of medico-legal interest relating to dead bodies. The book is encyclopedic in character and contains a fund of information which should be of vital interest to physicians in general, and particularly to those whose duties bring them into close relations with the courts. The treatise is already well known to the medical profession, and this second edition is sure to meet with a hearty reception.

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ANNUAL REPORT OF HARVARD UNIVERSITY, 1905–6.

THIS annual report appears later than common this year, but makes up in size what it lacks in punctuality. Of the president's introductory pages a certain number, as usual, are devoted to the Medical School. A brief rehearsal of the ceremonies at the opening of the new buildings of the school last September leads up to the following statements:

"Up to Oct. 1, 1906, the land on which they stand has cost, with interest, approximately, $371,000, and the buildings have cost with interest, approximately, $2,492,000, including the grading of the grounds and the cost of the fixtures and furniture to that date. Four of the five buildings may properly be called laboratories; the fifth is devoted chiefly to administration and to the Warren Museum. They were brought into existence by the prophetic insight and the zeal of a few of the university's teachers of medicine and by the public spirit and intelligent generosity of a few score men and women who welcomed the opportunity to do some lasting and far-reaching good in the world; and the great achievement was made possible by the high standing of the medical profession in Boston and the vicinity for more than a hundred years. They are devoted to the teaching of the medical and surgical arts and to the pursuit of the biological and medical sciences. In the near future these buildings for teaching and research will be surrounded by four new hospitals, this grouping of the school with active hospitals having been part of the original plan at the time the purchase of the land was made by the university. Three of these hospitals take each a portion of the land which the university originally bought between Huntington and Longwood avenues. The buildings of the school have been very thoughtfully adapted to their uses. Doubtless some changes of detail will need to be made and some new constructions,

not of large amount, may prove to be desirable, but it will doubtless be possible to close the construction accounts before the end of the current academic year."

The Corporation, Mr. Eliot tells us, hope that the additional endowments which came to the school with the new buildings will prove to be sufficient for carrying on the school in a modest way in the new buildings; "but it is already plain that to utilize thoroughly the ample equipment with which the school is now furnished, additional endowment will be indispensable. All the activities of the school, and especially its activity in medical and surgical research, ought to be greatly enlarged; but these enlargements cannot be effected without considerable additions to the existing endowments of the school."

The Faculty of Medicine took an important step when they decided in the year under review to open all their courses of instruction to special students and to students in other departments of the university.

Mr. Eliot is of the opinion that the papers published by the teachers and students of the Medical School during the year 1905–6 will convince any one who examines them that medicine and surgery for human beings are hereafter to be furthered largely by the study of the other animals with which man is in contact, the other animals ranging from bacilli and microscopic parasites to large mammals. Mr. Eliot is evidently a friend of laboratories and of such departments as those of comparative anatomy, comparative physiology and comparative pathology.

He states that "the briefest examination of the report of the dean of the Medical School will satisfy any one that the school is now putting a large part of its energy into medical research. All departments of the school, including clinical medicine and clinical surgery, exhibit this tendency. The diminution in the number of students attending the school, consequent on the requirement of a degree for admission, has enabled all the teachers, but especially the laboratory teachers, to give less time to direct teaching and more to investigation. Taken in connection with the fact that far the greater part of the instruction which a medical student now receives is given in laboratories, including the laboratories connected with hospitals, this new development of medical investigation fully accounts for the proportion of laboratories in the new buildings of the Medical School."

If the president had confined his statement that, far the greater part of the instruction which a medical student now receives is given in laboratories, to the first year and a half or possibly two years of the four years' course, it seems to us it would have been more nearly correct.

It is true that a clinical laboratory has been established in the division of medicine for the special training of students and practitioners in the chemical, microscopical and bacteriological methods employed in the practice of medicine.

When, however, we turn to the report of the dean of the Medical School we find the following striking statement: "In my last report for the year 1904–5, I spoke of the somewhat surprising result of the choice of studies by the fourth-year men of 1905–6, when the new elective curriculum for the fourth year first went into effect, and showed by a comparative table that the students chose to continue practically the same work that had been previously required; that they had not elected specialties or laboratory courses to any extent, but preferred rather to continue their training for general practice by the pursuit of general clinical work. In other words, that the fourth class believed for the most part that it was too early in their education to begin to specialize." The dean goes on to state that this attitude is still more forcibly shown in the choice of work by the fourth class of 1906–7. A table of the half-courses elected by this class shows that 80% of these half-courses were in the fundamental subjects of anatomy, general medicine and surgery, pediatrics and obstetrics. The dean thinks it fair to conclude from the experience of the last two years that the students believe four years not too long a time to devote for the most part to preparation for general hospital work and subsequent general practice, and that specialized work in narrow fields had best be left for graduate study.

An analysis of the courses taken in the summer school seems to throw some light on this question, the conclusion being drawn that research and advanced courses attract but few students in summer.

In response to a communication, the faculty of medicine advised the corporation of the university that in their opinion it was impracticable at present to admit women to the regular curriculum of the Medical School.

The great need of the Dental School is a new building. For this land has been bought near the new buildings of the Medical School. The teachers have made renewed sacrifices in carrying on the school, and have continued their efforts to secure a building fund. These sacrifices and

efforts deserve more recognition than they have received, especially in view of the public services which the school renders. The school is forty years old and its permanent funds amount to only about forty thousand dollars.

The question of athletic sports receives more than usual attention in this annual report. As a new feature there is a distinct report, covering twelve pages, from the chairman of the Committee on the Regulation of Athletic Sports. Four of these pages are devoted to tables giving details of the receipts and expenses of the various sports. Those who are interested in intercollegiate athletic sports will find many instructive and some curious items therein. President Eliot in his introductory pages again pays his respects to foot-ball and especially to intercollegiate foot-ball. He admits that the game was somewhat improved by the working of the new rules "extorted last year from its creators and managers by the pressure of public opinion," but he holds that the spirit of the game remains essentially the same and may be properly described by the adjective "fierce," a term which he thinks is commonly applied to the game by its advocates. It is, therefore, he believes, an undesirable game for gentlemen to play, or for multitudes of spectators to watch. We imagine the term "fierce" as used in the undergraduate vernacular has taken on a somewhat modified meaning. It might be applied to an article of wearing apparel or even to a tea-party.

Mr. Eliot considers that from the educational point of view, the value of any sport is to be tested chiefly by the number of persons who habitually take part in it for pleasure during the educational period, and enjoy it in after life; and, tried by this test, that foot-ball is the least valuable of all college sports. What the president has to say on the subject of athletics this year is really summed up in the following closing paragraphs of this section of the report which immediately precede a more peaceful consideration of the "Agamemnon" of Æschylus as presented in the Stadium last June:

"It is high time that the whole profession of teaching in school, college and university united to protest against the present exaggeration of athletic sports during the whole period of education, and especially to bring competitive sports between schools and between colleges within reasonable limits, and to establish the supremacy of intellectual and moral interests over physical interests in all institutions of education. The object of attack should be, not athletic sports, but the gross exaggeration of them."

MEDICAL INSPECTION OF SCHOOLS.

UNDER the title: "Suggestions to Teachers and School Physicians Regarding Medical Inspection," the Massachusetts Board of Education has recently published a pamphlet, small in size, but giving much evidence of careful preparation. This pamphlet is an outgrowth of the work of a committee appointed by Governor Guild to prepare a circular of advice to the school physicians and teachers of the state. Various interests in the community were represented on this committee, which consisted of nine persons, a majority of whom were physicians. The committee, through a sub-committee, conferred at length with a large number of physicians representing the various branches of medicine which might in any way have bearing upon the health of school children. The result of the painstaking method employed to arrive at the facts, and also to secure suggestions of value, certainly shows itself in the succinct and clear statement which makes up the body of the pamphlet. A manifest difficulty in issuing directions of this sort is that too great elaboration may lead to a failure to impress important points. This danger has been entirely avoided. It has evidently been the aim of the compilers to draw attention essentially to matters which may be observed without detailed physical examination, and that teachers as well as physicians may intelligently appreciate. As a matter of fact, certain of the sections concern themselves, as is proper, entirely with directions to teachers, as, for example, "General Symptoms of Disease in Children," the recognition of which should lead to medical attention. Under this heading such signs as emaciation, puffiness of the face, shortness of breath, lassitude, eruptions, nasal discharges, coughs, vomiting, are briefly discussed. Conditions of the nervous system occupy upward of half a dozen pages, and here also the effort has evidently been to call attention to certain easily observable mental and physical defects, which may be of significance, and to draw attention also to the recognition of epileptic or other convulsive attacks.

In general, it is not to be doubted that this little statement placed in the hands of teachers and school physicians cannot fail to be of much value in developing a closer habit of observation on the part of those having children in charge, and thereby ultimately improving the public health.

STREET CLEANING AND HEALTH.

THE general subject of street cleaning and health formed the topic of discussion at the meet-

ing of the New York Academy of Medicine on April 4, and in accordance with a suggestion made by Dr. William Gilman Thompson, in an address on "Street Dirt and Disease," a resolution was adopted to request the mayor to appoint a special commission to study the existing conditions in New York and report upon them and such measures as it deemed necessary to secure an improvement, especially as regards the prevention of defilement of the streets. In the course of his remarks Dr. Thompson said, "Dirt begets dirt. Articles of food, such as fruit, which are exposed to the air, soon become coated with bacteria through the disease-laden dust which is constantly blowing off the streets. The good effect of outdoor life for convalescents is prevented by the same cause. After a few days of wind in New York there is an epidemic of coughs and colds. The difficulty in maintaining cleanness of the streets is in the multiplicity of officials. One who makes a protest is referred from one to another. It leaves a loophole of escape, this shifting of the responsibility from one department to another." Capt. F. M. Gibson, U. S. Army, retired, who was appointed deputy commissioner of street cleaning by the late Colonel Waring, under the Strong administration, and who was retained in that position under the various administrations until a short time since, discussed the "Practical Difficulties in Cleaning the Streets of New York City." Among these difficulties, he said, was the fact that the people themselves were too often violators of the city ordinances, instead of co-operating with the street cleaning department. This lack of co-operation was also shown by the city magistrates, who were in the habit of treating offenders far too leniently. The ordinances could be better enforced, he thought, if the police captains were permitted to have charge of such cases. Other difficulties met with were the too restricted use of water allowed the department and the lack of power to interfere with the dirt and dust production of building operations. "Practical Ideals of Street Cleaning" was discussed by Rudolph Hering, the sanitary engineer.

No doubt the situation differs in some respects in New York from that in other cities; but the fact remains that in any large center of population where there is constant traffic on the streets the question of dust and its accompaniments becomes a problem of pressing importance. In Boston we probably suffer from more frequent and violent winds than in many other cities, and it is certainly true that the problem of clean streets is one of vital interest to its citizens. An investigation some years ago was made into the facts, with special reference to the bacteria contained in ordinary street dust. It was found, if our memory does not fail us, that unpleasant and obnoxious as city dust may be, it does not under ordinary circumstances contain to any extent pathogenic organisms. The comfort derived from this is, however, tempered by the fact that it is quite impossible to exaggerate the irritating qualities of the particles composing dust driven at high velocity through the air and continually inhaled. There is small question that coughs, colds, and various disorders of the respiratory tract are directly induced by flying dust, but that there is a distinct menace to health from the more dangerous infectious diseases from this source is not yet proved. The esthetic side of the question is also not to be ignored. Dust, dirt and unclean streets are at best unpleasant and should not be tolerated if there is any remedy at hand. The problem needs further investigation, but it is perfectly apparent to the most superficial observation that more could be done than is now done, and that public opinion should demand the maximum of efficiency on the part of those whose duty it is to direct the work of street cleaning.

MEDICAL NOTES.

International Congress of Physiotherapy. — The Second International Congress of Physiotherapy will be held in Rome, Italy, on the 13th, 14th, 15th and 16th of October, 1907, under the presidency of Hon. Prof. Guido Baccelli; secretary, Prof. Carlo Colombo, Via Plinia, 1, Rome. The American Committee has been appointed with Dr. Francis B. Bishop, Washington, D. C., as president, Dr. Wm. Benham Snow, 347 West 57th Street, New York, secretary, and Dr. Albert C. Geyser, New York, as treasurer, with a special committee as follows: Dr. Fred H. Norse, mechanotherapy; Dr. Margaret A. Cleaves, phototherapy; Dr. Geo. C. Johnston, radiotherapy; Dr. M. H. Kissabian, radiography; Dr. Wm. James Morton, radium-therapy; Dr. Morris W. Brinkman, rhythmotherapy; Dr. Chas. Denison, climatology; Dr. G. Betton Massey, massive cataphoresis; Dr. David E. Hogg, thermotherapy; Dr. Edward C. Titus, electrotherapy.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, April 10, 1907, there

were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 53, scarlatina 33, typhoid fever 4, measles 10, tuberculosis 64, smallpox 0.

The death-rate of the reported deaths for the week ending April 10, 1907, was 21.48.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, April 6, 1907, was 248, against 247 the corresponding week of last year, showing an increase of 1 death and making the death-rate for the week 21.48. Of this number 135 were males and 113 were females; 244 were white and 4 colored; 148 were born in the United States, 95 in foreign countries and 5 unknown; 50 were of American parentage, 161 of foreign parentage and 37 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 38 cases and 1 death; scarlatina, 45 cases and 1 death; typhoid fever, 4 cases and 1 death; measles, 17 cases and 0 deaths; tuberculosis, 62 cases and 24 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 30, whooping cough 0, heart disease 29, bronchitis 5 and marasmus 2. There were 23 deaths from violent causes. The number of children who died under one year was 43; the number under five years 55. The number of persons who died over sixty years of age was 66. The deaths in public institutions were 82.

There were 18 cases and 7 deaths reported from cerebrospinal meningitis during the week.

BEQUESTS. — By the will of the late Mrs. Eliza T. Dodge, the bulk of her estate, amounting to $200,000, is left to the charitable and educational institutions of Worcester, Mass. Among the beneficiaries are the Worcester Society for District Nurses, $2,000, and the Memorial Hospital, $5,000.

SMALLPOX IN CHELSEA. — Owing to the appearance of smallpox in Chelsea, Mass., three of the public schools have been temporarily closed to guard against the further spread of the disease. This seemed advisable, because many of the pupils in these schools lived in the district in which smallpox has appeared.

CONSECRATION OF NEW ENGLAND DEACONESS HOSPITAL. — The new hospital of the New England Deaconess Association in Boston was formally opened April 8. Many persons availed themselves of the opportunity to inspect the building, which is located in the neighborhood of the new Harvard Medical School buildings. The new hospital is commodious and admirably adapted to the purpose for which it is to be used. It will be open for inspection each afternoon this week.

EXAMINING PHYSICIANS AND SURGEONS MEET. — A large gathering of Examining Physicians and Surgeons of Boston and vicinity met April 3, 1907, at the Boston City Club, to perfect an organization to be known as the Boston Society of Examining Physicians and Surgeons. A committee of five, appointed on the evening of March 22, at the Hotel Somerset, for the purpose of drafting by-laws and constitution, consisting of Drs. Allard, Donoghue, Greene, Cutting, Hartung and Kepler, made a report.

It was voted to call the organization the Boston Society of Examining Physicians and Surgeons, the objects of the society being to establish more intimate acquaintance and social relations between physicians who regularly make examinations for life or accident associations or who testify in court.

There will be three meetings a year. All physicians and surgeons who do examining regularly for some association or corporation, and who have untarnished records, will be eligible. Noted experts and alienists from all over the country will be invited to join, as honorary members. The committee of five had the assistance of a prominent Boston attorney in the drawing up of the agreement of the association and constitution.

The officers elected were: Dr. Francis D. Donoghue, president; Dr. Frank E. Allard, first vice-president; Dr. Edward M. Greene, second vice-president; Dr. Chas. Theo. Cutting, secretary; Dr. Charles O. Kepler, treasurer.

Numerous committees were appointed for special work.

It is hoped that the effect of this organization will be to bring the examining physicians and surgeons of Boston in touch with experts all over the country, and will aid in raising the standard of expert testimony in this state.

NEW YORK.

SALE OF COCAINE WITHOUT PRESCRIPTION PROHIBITED. — The lower house of the legislature has passed by a unanimous vote the bill which prohibits the sale in the state of New York of cocaine and all preparations containing the

drug, except upon a physician's prescription. The bill was strongly opposed by the patent medicine interests and by some of the drug houses.

American Society of Tropical Medicine. — The third annual meeting of the American Society of Tropical Medicine was held at the New York Academy of Medicine on March 29. On this occasion a lecture on "Observations of Health and Disease in East Africa" was delivered by Dr. Louis L. Seaman, of New York, who went to the East coast last summer with Dr. Nicholas Senn, of Chicago, for the purpose of making a study of the existing health conditions. In the course of it he stated that the vast majority of diseases in the tropics resembled those of this and other temperate countries. The difference there was that the intense heat promoted the development of micro-organisms and hastened the resulting changes, so that the reaction of the diseases was more severe and prolonged than in climates where the patient had the benefit of a cooler atmosphere. The sleeping sickness, he said, had proved uniformly fatal to the natives. Incidentally Dr. Seaman related that he himself was once bitten by the tsetse fly, which produces this disease, but, aside from the painfulness of the sting, like that of the bee, he experienced no ill effects.

Jewish Communal Institutions. — At a meeting held March 17, by a vote of 79 to 15, the plan of the recently organized Federation of Contributors to the Jewish Communal Institutions of New York was approved. The federation is intended to serve as an administrative body to have charge of the collection and distribution of all contributions, thus relieving the several institutions of financial cares. At the meeting a number of hospital and asylum directors expressed themselves as opposed to the plan on the ground that under it the lack of special interest in individual institutions would tend to diminish contributions. On the other hand, it was asserted that the federation had proved very successful in other cities, more money being obtained for each and every institution, without individual effort on its part. It is stated that those present at this meeting appeared simply as individuals, and that the vote taken does not bind the various institutions represented at it by members of their boards of management. It was merely an expression of opinion as to the advisability of the proposed plan. This having been in its favor, the federation would continue its work, hoping to demonstrate its usefulness.

Current Literature.

The Journal of the American Medical Association. March 23, 1907.

1. *Herter, C. A. *Common Bacterial Infections of the Digestive Tract, and the Intoxications Arising Therefrom.*
2. *Brawley, F. E. *Relation of Diseases of the Nasal Accessory Sinuses to Disease of the Eyes.*
3. *Henry, W. U. *To What Extent Can the Gynecologist Prevent and Cure Insanity in Women?*
4. Tucker, E. F., Marcy, H. O., and Clark, J. G. *The Nomenclature of Endometritis.*
5. Weisenberg, T. H. *Conjugate Deviation of the Eyes and Head.*
6. *Toms, S. W. S. *The Relation of Eye-Strain to Chronic Headaches.*
7. Posey, W. C., and McKenzie, R. S. *Results of the Examination of Students' Eyes.*
8. Homan, G. *The Danger of Dust as a Cause of Tuberculosis.*
9. *Sollman, T., and Brown, E. D. *The Value of Sulphates in Carbolic Acid Poisoning.*
10. *Walker, G. *Simple Ulcer of the Bladder.*
11. *Senn, E. J. *Etiology and Pathology of Traumatic Rupture of the Abdominal Viscera.*

1. Herter's Harvey Lecture upon the bacteriology of the intestinal tract is reported in abstract. Herter does not consider conclusive the experimental studies as to the necessity of bacterial action in the digestive tract for the maintenance of health in the higher mammals. The obligate bacteria of the intestines are not ordinarily harmful to man, and their value to him is probably in checking the development of the more injurious ones. Herter discusses the effect of aërobic and anaërobic conditions and shows that the larger number of anaërobic organisms are found in the large intestine, where there is most pronounced evidence of intestinal putrefactive action. The conditions are not the same at all ages. In infancy there are fewer bacterial species and these vary somewhat in bottle-fed and breast-fed infants. During childhood and adolescence there is a gradual change, and in later adult life the number of putrefactive anaërobes is increased and, while the general health may not appear to suffer markedly, there is more or less intoxication from putrefactive processes which aid in bringing on senility. The differences of individual susceptibility and the effects of various putrefactive products are discussed. Some of these, such as ammonia, putrescin and cadaverin, are produced in such small quantities as hardly to be of much importance. Others, such as the sulphur compounds, phenol, cresol, skatol, and indol, are of more importance and may produce observable toxic effects. The individual cellular reaction of the patient is probably more responsible than the poison for the differences and effects sometimes observed in individuals, as in the idiosyncrasies observed in different patients in certain kinds of foods. Herter suggests the recognition of three types of chronic excessive intestinal putrefaction, *viz.*, the indolic type, marked by striking indicanuria; the saccharo-butyric type, due apparently to the anaërobic forms; and the combined type of the two former. In the latter there is more rapid advance of invalidism than in either of the other two. There are earlier and more prominent nervous symptoms, mental depression and irritability, and quick fatigue, sometimes ending in a picture of pernicious anemia or pronounced melancholia. The therapeutic indications are, first, avoidance of reinfection by special attention to the diet and care of mouth and teeth; second, the aiding of digestion; and third, the reduction of putrefactive organisms in the colon. The prognosis is least hopeful in neurotics and best when the condition is obviously due to gross errors in life which can be corrected.

2. Brawley calls attention to what he considers a practically unrecognized condition, rarely attributed to the nose and almost always to the eyes, and the fact that glasses will sometimes give temporary relief tends to confirm the error. The origin of the trouble generally dates back to an attack of grip or a hard cold, and the headache.

when it first appears is often unilateral, though later becoming general. It occurs both by night and day, often beginning and ending at regular hours. During the attacks the use of the eyes is almost impossible, as it intensifies the symptoms; insufficiency, both of accommodation and convergence, is usual, and distant vision may be reduced. There is often unilateral lachrymation and local pain and swelling about the eyes. Stooping over especially aggravates it, and it is affected by jarring, circulatory disturbances of any kind, excesses of eating, etc. As a rule, there is no history of nasal disease. A close examination will reveal a swollen, boggy turbinal or one so closely applied to the lateral nasal wall as to press on the hiatus semilunaris and to interfere with the interchange of air and exit of normal secretions from the frontal and anterior ethmoidal cells. If the use of suprarenalin and cocain to the middle turbinal and infundibulum relieves the attack, a resection of the hypertrophied anterior end of the middle turbinal is indicated to restore normal conditions of air interchange and exit of secretions. The technic of the operation is given and the author reports ten cases. The point he specially emphasizes in his paper is the absence of all definite nasal symptoms and the apparently normal nose. There may be more serious conditions, however, such as acute suppuration of the sinus producing these symptoms. It is in the milder non-suppurative case that the real cause of the condition is likely to be overlooked.

3. Henry reviews the literature of the subject of insanity in connection with pelvic disorders, quoting the opinions of various authorities and criticising some of them who have minimized the value of gynecologic operations for the cure of insanity in women. He gives very brief reports of 28 cases, in which he operated on such patients; of this number he claims that 16 recovered from their mental disorders, 3 of them having remained well nine, ten and eleven years, respectively. He thinks that there is a vast amount of undiscovered pelvic disease in insane women, the relief of which by operative methods would be possible. He insists on the necessity of radical work in these cases so as to leave no possible source of irritation that might perpetuate the insanity.

6. Toms claims that 90% of all those suffering from reflex or neuralgic headache have ocular defects. Over 600 of the patients examined were altogether unaware of their defect. Fully half the cases were of only slight refractive errors or muscular imbalance, and it is in these cases in which ciliary spasm is the direct factor in causing headache in persons whose occupation calls for near vision, that accommodative asthenopia results. While there were occasional complications, only 5% of the patients had discoverable organic lesions that possibly intensified, or were partly to blame for the head pain. Of those who were relieved of their headaches, 75% had no other treatment than properly adjusted glasses or appropriate treatment for their muscular anomalies. The types most frequently met are the occipito-cervical, fronto-temporal and the hemicranias. There is no apparent relation between the severity of the headache and the degree of the ocular defect and nothing especially characteristic except, perhaps, the patient's non-suspicion of the cause. Sickness or health impairment may be the first inciting factor in some patient with considerable ocular defects which gave no trouble before. In this connection, the author mentions, as an ocular condition that does not receive the attention it deserves in young subjects, subnormal accommodation or premature presbyopia, which may be the cause of alarming symptoms of headache and insomnia. Such patients often have a very acute vision for distance, with a slight muscular trouble of exophoria or esophoria, which is a misleading condition. They refuse all distance lenses or prisms, but find immediate relief when a presbyopic correction is made.

9. Sollman and Brown summarize the results of their investigation as follows: 1. Chemical combination between phenol and a sulphate does not occur outside of the body, neither in neutral nor in weakly acid nor in weakly alkaline solution. This excludes at once all possibility of chemical combination in the alimentary canal or in the blood. 2. The blood pressure and convulsive effects of phenol are not modified in the slightest degree by intravenous injection of liberal quantities of sodium sulphate under any of the following conditions: (*a*) When phenol, even in sublethal doses, is introduced into the stomach and is followed within fifteen minutes by intravenous sulphate injection. (*b*) When sublethal doses of phenol are injected intravenously and followed promptly by the sulphate. (*c*) When sublethal doses of phenol are injected intravenously after the sulphate injection. (*d*) When an incubated mixture of phenol, sodium sulphate and sodium bicarbonate is compared with a solution of phenol in sodium chlorid solution. (*e*) When the sulphate is injected immediately after cardiac stoppage from lethal doses of phenol. The conclusion that sodium sulphate, however administered, is not a chemical antidote, as suggested by Baumann, for acute phenol poisoning, follows clearly from the above. Details of the experiments, which were made on anesthetized dogs, are given. The apparent beneficial effects of intravenous sulphate injections observed clinically in some less severe cases is attributed by the authors to saline stimulation, as chemical combination could not have taken place in the time reported. They think that the method may have some value and deserves trial.

10. Walker gives a report of two personal observations of this comparatively infrequent condition, which he defines as a single non-inflammatory ulcer of the mucous membrane of the bladder, occasionally penetrating the entire wall, and due probably to local disturbance in, or complete blocking of, the terminal artery, or by an interference with the trophic nerves, and never produced by infection of the bladder, though in its second and third stages it becomes infected with the ordinary pyogenic organisms. Two types are recognized: the simple chronic form leading to cystitis, and the acute perforating ulcer. The early symptoms of the chronic type are those of irritation; increased frequency of micturition, scalding, pain, etc., and later, cystitis with aggravation of all the symptoms; finally, bladder paresis; and the patient, unless relieved by operation, succumbs to exhaustion or ascending infection. In case of the acute perforating ulcer there are no symptoms whatever until perforation occurs. In the earlier stages the cystoscope affords the only means of diagnosis, and shows a simple ulcer with clean-cut and slightly indurated edges surrounded by normal mucosa. It is distinguished from tuberculous ulcer by its clean, not undermined edges, the appearance of its base, the absence of surrounding tubercle and of tuberculosis elsewhere. Only in this early stage can it be distinguished from the ulceration of the various forms of cystitis, and Walker believes that many cases of diagnosed healed tuberculous cystitis were primarily this disease. The prognosis of simple ulcer in the early stage is good if proper treatment is given. In the second stage, when lime salts have been deposited and the ulcerations are exaggerated, curetting and drainage will generally effect a cure. In the third stage when there is great interstitial change, the prognosis is grave, and the acute perforating ulcer is usually fatal, practically always so when the peritoneum is involved. One very early recognized case is reported by Harrison, in which the patient was cured by operation. Silver nitrate irrigations, from 1 to 10,000 up to 1 to 5,000 every second day will usually cure in the first stage. In the second stage curetting and cauterization with prolonged supra-pubic drainage are generally necessary. In the third stage, drainage, irrigation and gradual bladder distention are all that can be done.

11. Senn describes the conditions of traumatic injury to the abdominal organs and their causes in detail, taking up each organ separately. A healthy spleen is seldom injured, the organ is usually already enlarged by some pathologic process or infection. Slight injury may cause only an absorbable hematoma or, if infected, an abscess and adhesions which may discharge through adjacent hollow organs. Such outcome, however, is rare; the tear is usually through the capsule, and rapid hemorrhage, calling for quick surgical intervention, occurs. The pancreas is seldom directly injured, and its rupture without implication of other organs ought to be one of the greatest rarities. The relation of slight injuries to pancreatic cysts is probably intimate. The liver is the most frequently injured abdominal organ and its rupture favored by pre-existing tuberculosis, syphilis, and amyloid degeneration. The gall bladder when distended is easily ruptured and gives rise to violent symptoms, especially if already in-

fected, septic peritonitis being inevitable. The stomach is evidently rarely damaged by direct force, but intestinal traumatisms are more frequent, and Senn goes at some length into the discussion of the mechanism and pathology of intestinal injuries. These may be contusions, or complete or incomplete ruptures. The former cause frequently no untoward symptoms. Incomplete ruptures involving one or more tunics, he thinks, are probably more frequent than has been supposed. Complete rupture always occurs opposite the mesenteric junction and leakage is largely prevented by the close packing of the abdominal contents and in minute tears, by the contractility of the intestinal tunics. Even in large complete ruptures there may be no visible escape of the contents. The kidneys are not properly abdominal organs, being extraperitoneal, but their injuries are comparatively frequent, especially in young males owing to the greater exposure. The mechanism is usually a bending or fracture of the lower ribs. Senn suggests that one cause of the infrequency of the accident in women may be the mode of dress, the corset protecting the organ, though the greater thickness of tissues and the wider spread of the iliac crests are also suggested as factors by Küster. Injuries of the bladder are also most frequent in males, and this is not altogether due to greater exposure, but is probably due partly to anatomic causes. Distention is one of the main factors; an empty bladder is rarely injured, except with fracture of the pelvis. The majority of bladder tears are intraperitoneal, and rapid progressive peritonitis results unless prevented by radical surgery. Virulent sepsis follows the extraperitoneal rupture.

SURGERY, GYNECOLOGY AND OBSTETRICS.
MARCH, 1907.

1. *KELLY, H. A. *Surgical Treatment of Tuberculosis of the Kidney.*
2. BYFORD, H. T. *Vaginal Section as an Operation of Choice.*
3. NOBLE, C. P. *Tuberculosis of the Kidney.*
4. BOVÉE, J. W. *Hysterectomy and Removal of the Body of the Uterus.*
5. LOGAN, J. C. *Comminuted Fracture of Both Ends of the Radius.*
6. SHARPE, N. W. *Foreign Bodies within the Vagina.*
7. SHELDON, J. G. *Occlusion of the Femoral Vein.*
8. *BÜRGER, L., and CHURCHMAN, J. W. *The Cœliac and Mesenteric Plexuses and their Role in Abdominal Shock.*
9. LONG, J. W. *Surgery of Typhoid Perforation.*
10. *REYNOLDS, E. *Primary Operations for Obstetrical Debility*
11. SELLIG, M. G. *Reticulum in Small Round Cell and Lympho-Sarcoma.*
12. *MEYER, W. *Akanthosis Nigricans.*
13. MORAN, J. F. *A Study of Vaginal Cæsarean Section.*
14. *THEILHAUBER, A. *Symptoms of Versions and Flexions of the Uterus.*

1. Kelly bases his discussion of the surgical treatment of tuberculosis of the kidney on 57 nephrectomies with 4 deaths, giving a primary mortality of 7%. He makes the following points: (1) Tuberculosis of the kidney, not including general miliary tuberculosis, is always unilateral at the start.. (2) It is practically always hematogenous in its origin. (3) Primary tuberculosis of the bladder is rare. (4) Although a bladder tuberculosis cannot heal while there is a tubercular kidney above, it does respond to suitable treatment after a nephrectomy. (5) Nephrectomy is the operation of choice, and the proper time to do it is as soon as possible after the diagnosis has been made. (6) Involvement of the bladder is not a contra-indication to nephrectomy, nor is tuberculosis elsewhere in the body unless extremely active. As regards concomitant involvement of the other kidney, Kelly says that where the worst kidney is not secreting at all or very little, its removal seems to benefit the sounder one and to help the general condition remarkably, though only temporarily. Hyaline casts and albumin in the urine from the second kidney are no contra-indication to nephrectomy. Cases where the ureter can be removed respond more quickly to bladder treatment than do those where it is allowed to remain.

8. In a series of animal experimentations the authors were unable to produce a condition of shock by section or electrical stimulation of the mesenteric and celiac ganglia. In the presence of a peritonitis due to moderate doses of turpentine, however, stimulation of the ganglia was regularly followed by marked evidences of collapse and death, either during the experiment or shortly afterward.

10. Reynolds believes that when pregnancy occurs in a neurasthenic woman with little nervous endurance or capacity for bearing pain, with poor muscles, heart muscle and lung capacity, and with ill-trained and usually deficient eliminative system, her habits and general condition should be most carefully regulated during this period. When such an obstetrically weak woman has steadily retrograded during pregnancy the inevitable fatigues of natural labor are more than the disadvantages of operative delivery. He therefore advises that at the calculated date of term or with the advent of the first pains of labor, such cases should be carefully prepared, fully etherized, and either instrumental delivery or Cæsarean section carried out.

12. Meyer presents a valuable colored plate of the skin condition known as akanthosis nigricans which frequently accompanies intra-abdominal carcinoma.

14. Theilhauber concludes a rather scholastic address on versions and flexions of the uterus with the following statement: "Every position of the uterus within the true pelvis is normal; abnormal is the position of the uterus outside of the pelvis — the prolapse of the uterus."

THE LANCET.
MARCH 16, 1907.

1. BUZZARD, E. F. *Certain Acute Infective or Toxic Conditions of the Nervous System.*
2. WALKER, J. W. T. *The Renal Function in its Relation to Surgery.*
3. BEEVOR, C. E. *The Diagnosis and Localization of Cerebral Tumors.*
4. URQUHART, A. R. *Insanity with Special Reference to Prognosis.*
5. *SUTHERLAND, G. A. *The Medical Treatment of Congenital Pyloric Stenosis.*
6. *WEBER, F. P. *On Tertiary Syphilitic Fever and the Visceral and Other Changes Connected with It.*
7. MORTON, R. *A Radiographic Survey of 170 Cases Clinically Diagnosed as Colles's Fracture.*
8. IBOTSON, E. C. B. *Note on the Use of Aceto-Salicylic Acid in Rheumatic Endo-Pericarditis.*
9. CAMPBELL, H. *The Role of the Blood Plasma in Disease.*

5. Sutherland reports three cases of congenital pyloric stenosis and comments on the medical treatment. He believes that as knowledge and experience of this disease and its medical treatment increase, there will be fewer and fewer cases in which surgical intervention is called for. The object of medical treatment is to remove and prevent any source of irritation in the stomach which may cause spasm, and to restore the function of relaxation of the pylorus, which has been in abeyance owing to the more powerful action of the constrictor muscular fibers. He discusses the proper food in these cases. The stomach should be washed out once a day and the residue carefully studied. Drugs are of no avail.

6. Weber discusses tertiary syphilitic fever, its treatment and diagnosis. It is often mistaken for tuberculosis and not until some bone lesion or other unmistakable evidence of syphilis develops is its true nature made clear. Tuberculin is of little value in distinguishing these cases and may be dangerous. There may be enlargement of the liver and spleen which will make the condition simulate other diseases.

BRITISH MEDICAL JOURNAL.
MARCH 16, 1907.

1. OLIVER, T. *Thoracic Aneurysm.*
2. RANKIN, G. *Aortic Disease.*
3. *GROVES, E. W. H. *The Surgical Aspects of Hemophilia.*
4. *MANN, J. D. *Cor Triloculare Biatriatum.*

5. BRUNTON, L. *On the Use of Calcium Salts as Cardiac Tonics in Pneumonia and Heart Disease.*
6. RENTON, J. C. *Delayed Chloroform Poisoning.*
7. BERNSTEIN, J. *Chronic Peritonitis Causing Elephantiasis.*
8. FORDYCE, A. D. *The Relation of Diet to Thyroid Activity.*
9. HERON, D. *Note on Class Incidence of Cancer.*
10. SAVAGE, G. H. *Insanity, Its Causes and Increase.*

3. Groves discusses some cases of hemophilia with a consideration of the evidence of this disease in other members of the family, and takes up the surgical aspects. These consist of arthritis of the elbow and knee due to hemorrhage into the joint with subsequent organization of the blood, and Volkmann's contracture of the muscles of the palm and of the forearm. This results in a claw-hand and actual shortening of the muscles of the forearm. The atrophy of the muscles is in these cases probably caused by hemorrhage into the muscle sheath, with later organization.

4. Mann describes an interesting case of a three-chambered heart. He discusses the question of congenital cyanosis and its relation to some cases of polycythemia with enlargement of the spleen. He concludes that any condition giving rise to prolonged cyanosis tends to produce polycythemia.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT. No. 10. MARCH 7, 1907.

1. HOFFA. *The Treatment of Tuberculous Coxitis.*
2. PELS-LEUSDEN. *Madelung's Deformity of the Hand.*
3. JELLINEK, S. *Pathology, Treatment and Prophylaxis of Electrical Shock.*
4. *EBER. *Two Cases of Infection of Cattle with Human Tuberculous Material.*
5. *WEBER. *Remarks on the Foregoing Article of Professor Eber.*
6. *LOEB, L., and FLEISCHER, M. S. *The Influence of Iodine Preparations on the Arteriosclerosis Produced by Injections of Adrenalin.*
7. BARTH, A. *Diplakusis.*

4. Eber reports two very interesting experiments from the veterinary institute of Leipzig, whereby tubercular material from two adult cases of pulmonary tuberculosis, after passage through guinea pigs, was successfully innoculated into calves, causing typical bovine tuberculosis in one case, and in the other a bovine and acute miliary tuberculosis of lungs, liver and spleen. These experiments, Eber thinks, disprove the positive statements of the Koch school, and especially the recent conclusions of Professor Weber, reported in No. 49 of this JOURNAL (abstracted Jan. 3, 1907), in which he reaffirms the duality of the two varieties of the tubercle bacillus.

5. Weber briefly refutes the conclusions of the foregoing article, that bovine and human tubercle bacilli have a single etiological cause. He criticises Eber's experiments because no effort was made to determine whether, in the two cases of phthisis, there was not present a double infection with the bovine bacillus, and because when such large amounts of the material were used, a bovine infection might easily have taken place.

6. Loeb and Fleischer have carried on some investigations on rabbits, first producing an arteriosclerosis by means of injections of adrenalin, and then determining the action of various iodine preparations. They conclude that iodine preparations have no beneficial effect on arteriosclerosis thus produced, and when large doses of iodine were given the adrenalin seemed to produce greater effects. Potassium sulphocyanide, on the other hand, seemed to have a preventive effect on the adrenalin and to limit the arteriosclerosis.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 9. FEB. 26, 1907.

1. *HOCHHAUS, H. *Abortive Heart Beats.*
2. *VOLHARD, F. *The Examination of Pancreatic Juice in Man, and a Method for the Quantitative Estimation of Trypsin.*
3. *LEWINSKI, J. *A Comparison of Sahli's Desmoid Reaction and A. Schmidt's Connective Tissue Test.*
4. *MULZER, P. *Thrombosis in the Blood Vessels of Internal Organs after Ether and Chloroform Narcosis.*
5. VOHSEN, K. *Passive Congestion and Suction Therapy Applied to the Ear and Upper Air-Passages.*
6. MUCK, O. *The Suction Treatment of Otitis Media.*
7. KREUTER. *Experiences with Scopolamin-Morphin-Chloroform Narcosis.*
8. PETERS. *The Sedimentation of Sputum by the Hydrogen Peroxide Method.*
9. LENGFELLNER, K. *Flat-foot Plates.*
10. HOFMANN, A. *A New Extension Apparatus.*
11. HEINE, O. *Celluloid Wire Bandages.*
12. BOAS, J. *Nervous Eructations.*
13. KOLB, K. *The Collective Inquiry of the Bavarian Cancer Committee for the Year 1905.* (Concluded.)

1. "Abortive" (frustrane) cardiac contractions are those that give rise to no palpable pulse in radial or carotid. A slight pulse wave may be visible, however, in a sphygmographic tracing. The apex beat is often increased in force, in striking contrast to the absence of pulse in the peripheral arteries, and the first sound may be very sharp, like that in mitral stenosis. The condition is regarded by many writers as identical with extra systole, where the extra contraction occurs at too short an interval after the normal systole. Hochhaus cannot agree to this, for in some cases the normal interval is met with after the abortive contraction. The cause, as he believes, lies in a qualitative change in the muscle contraction, and probably also in an abnormal point of origin, usually the ventricle itself, instead of the normal place, the point of entrance of the veins into the auricles. It seems probable that abortive contractions may also arise directly from nervous influences. The treatment is that of the underlying condition, which may be either cardiac neurosis or organic heart disease.

2. Volhard publishes a method to obtain pancreatic juice for clinical examination, based on Boldireff's observation that pancreatic juice and bile pass into the stomach when the latter contains much fat. Two hundred cubic centimeters of olive oil are administred fasting, and the gastric contents are expressed one half hour later. By this method Volhard obtained pancreatic secretion in 85% of normal persons. In a case of pancreatic diabetes with fat stools he was able to demonstrate the absence of pancreatic secretion by this method. At autopsy, the parenchyma of the pancreas was almost totally destroyed and the ducts stopped with calculi. The fat-splitting ferment found in the stomach contents in this case must therefore have come from the stomach itself, and not from the pancreas as has been supposed by some. He gives the details of a test for the presence of trypsin which may be used also quantitatively. It rests on the fact that the compound formed by HCl and casein is precipitated by sodium sulphate, while the compound of HCl with caseoses is not precipitated.

3. Schmidt's connective tissue test consists in the search for macroscopic bits of connective tissue in the feces after the administration of the Schmidt test diet. Normally the connective tissue contained in the meat should be digested in the stomach, and the appearance of undigested fibers in the stools shows a deficiency of this function. Sahli's desmoid reaction also depends upon the digestion of connective tissue in the stomach; a small rubber bag is filled with methylene blue and tied up with catgut; if the secretory and motor functions of the stomach are normal the catgut is digested, and the methylene blue will appear in the urine within a certain time. Lewinski made a comparative test of the two reactions and found that in one half of his cases they did not agree. He attributes this to changes in the catgut brought about in the process of manufacture. He was able to confirm Saito's statement that catgut may be digested by pancreatic and intestinal secretions. For these reasons, he considers the Sahli test as of little value.

4. Mulzer reports interesting experimental work on the effects of ether and chloroform narcosis on rabbits. He found in animals which were subjected to long periods of narcosis thrombi in the small arteries of the lungs, and to less extent in the liver and kidney. He proved that these changes took place during life, by finding them in tissue excised before the death of the animal.

BERLINER KLINISCHE WOCHENSCHRIFT, No. 7.
FEB. 18, 1907.

1. TAVEL. *Artificial Thrombosis of Varicose Veins.*
2. KAREWSKI, F. *On Subcutaneous Injury to the Pancreas and Its Treatment.*
3. *WEBER and KRAUSE, M. *The Treatment of Experimental Trypanosome Infections with Dyes.*
4. MAAS, O. *The Prognosis of Multiple Sclerosis.*
5. *EDENS. *Primary and Secondary Tuberculosis in Man.* (Concluded.)
6. RÜLF, J. *The Cancer Problem.* (Concluded.)

3. Weber and Krause experimented with various aniline dyes as to their effect on the trypanosoma Brucei. They found fuchsin to have the most marked action on this organism, especially as a prophylactic. Mice and rats receiving simultaneous injections of fuchsin and trypanosomes did not sicken, and their blood remained free from the organisms, while the controls all died. If the injections were made later, several days after infection, the effect was only temporary, for after a few weeks the trypanosomes could be found again in the blood, and the animals died. It is interesting to note that aniline dyes which have a marked destructive effect on one kind of trypanosome may have very little on another; for instance, trypan-red, which is very effective against the trypanosome of *mal de Caderas*, was found to have little effect on the trypanosoma Brucei.

5. Edens reports 9 cases of primary tuberculosis of the intestines, under which he includes also tuberculosis of the mesenteric glands. All ages were represented from infancy to old age. It is usually stated that the reason why intestinal tuberculosis is usually localized in the mesenteric glands in children, but in the intestinal mucous membrane in adults, is because the lymph vessels are broader in children. Edens does not believe this, but thinks that the true reason is that in the case of children it is a primary infection, while in adults the patient has been previously infected with tuberculosis. He believes in Behring's statement that patients who have never had tuberculosis before will acquire on infection a glandular tuberculosis, but if they have been previously infected and have become hypersensitive to tuberculin, they tend to have tuberculous disease at the point of entry of the bacilli. This theory would explain the frequency of scrofula and tuberculosis of the mesenteric glands in children, and the preponderance of lesions of the lungs and intestinal mucous membrane in adults. He gives the protocols of a number of autopsies which may be taken as bearing out his views.

No. 8. FEB. 25, 1907.

1. HIRSCHBERG, J. *The Use of Electro-magnets in Ophthalmology.*
2. *ORTH, J. *On the Statistics of Primary Tuberculosis of the Intestine.*
3. *JOACHIM, G. *Registration of the Contractions of the Left Auricle in a Case of Adams-Stokes Disease.*
4. BANG, I. *A New Method for the Estimation of Sugar in the Urine.*
5. MÜHLMANN, M. *Observations on the Granules of Leucocytes and on Hemoconia (Blood-dust).*
6. LYRITZAS. *The Estimation of Hypermetropia without Skyoscopy.*

2. Orth's paper is to correct a mistake in a recent article by Edens, who stated that the statistics from Orth's institute showed a percentage of 23% primary tuberculosis of the intestine out of 44 tuberculous children. This figure according to Orth should be reduced to 10%.

3. Joachim in a typical case of Adams-Stokes disease obtained a tracing of the contractions of the left auricle by the use of an apparatus introduced into the esophagus (Minkowski's method). By comparison of this with tracings from the jugular vein he proved that both the auricles contracted at the same time in this case, and therefore excluded the possibility of hemisystole, *i.e.*, a different rate of contraction of the two sides of the heart. The esophageal method causes too much distress to the patient to be of general application, but it offers the only possibility of obtaining tracings from the left auricle.

THERAPIE DER GEGENWART.
MARCH, 1907.

1. *SENATOR, H. *The Treatment of Arteriosclerosis.*
2. JANOWSKI, W. *Intercostal Neuralgia.* (Continued article.)
3. *CLEMM, W. N. *Resinous Wine.*
4. *LÖBEL. *The Effect of Yoghurt on the Intestinal Flora.*
5. WOHRIZEK, R. *Therapeutic Notes on Pediatrics.*
6. FELLNER, O. O. *Psychosis and Pregnancy.*
7. BERG, G. *Remarks on Erb's Article on the Statistics of Gonorrhea.*

1. In the treatment of arteriosclerosis, Senator lays much emphasis on the diet, which should consist chiefly of milk, vegetables and fat. Animal proteids and extractives are to be avoided, especially red meat. The reason for this, according to Senator, is that meat increases intestinal putrefaction and therefore the danger of absorption of toxic material. The vegetable diet has yet another advantage, for it decreases the viscosity of the blood, and therefore the work of the heart and arteries. Potassium iodide has the same effect, and is best given as iodipin or sajodin; it can be advantageously combined with one of the nitrites. Hydrotherapy, massage and gymnastics may be of benefit, but must be used with caution owing to the danger of overstraining the heart. Various preparations have lately been put on the market under the name of antisclerosin, regenerol, etc., containing various mineral salts in the proportions in which they occur in normal blood serum. The use of such preparations appears to have some justification, for it has been shown that in arteriosclerosis the salts in the blood are diminished.

3. Clemm praises the action of the resinous wine used by the Greeks as a table wine. It has an excellent effect on the appetite and owing to the turpentine it contains, it possesses all the numerous actions of that drug.

4. The bacteria of the intestine consist chiefly of two varieties, the colon bacillus and the lactic acid bacillus; the latter is of great physiological importance but never pathogenic. The colon bacillus on the other hand is often harmful to man, and is apparently of little use to the economy. Yoghurt, a form of sour milk used in Turkey, has the effect of greatly diminishing the numbers of colon bacilli in the intestine. This is due to the fact that it is prepared from a pure culture of lactic acid bacilli and does not contain butyric and acetic acids, which are uniformly present in common sour milk. Yoghurt is indicated, therefore, in all intestinal conditions in which the colon bacillus may be supposed to be instrumental, and especially in intestinal indigestion and catarrh. It may be given in tablet form.

Experimental Purpura. HEYROVSKY (*Wiener klin. Wochenschr.*, Feb. 28, 1907) reports the production of experimental purpura by means of the injection of filtrates of cultures of the pneumococcus and of streptococcus mucosus. These organisms grow profusely in glucose bouillon, but die out very rapidly so that after twenty-four hours they can no longer be cultivated. Mice injected with the filtrate of such a culture did not usually die, but showed a purpuric eruption in various parts of the body and hemorrhages in various internal organs. Cultures and microscopic sections showed the absence of bacteria in these lesions.

Salt-free Diet in Chronic Parenchymatous Nephritis. PEABODY (*Med. Rec.*, March 9, 1907) urges a more general trial of the limitation of salt in the diet of nephritics. The theory upon which the treatment is based is that in parenchymatous nephritis the kidney becomes less permeable to sodium chloride, which therefore accumulates in the body. Increase of salt in the tissues, according to the laws of physiology, necessitates an increase of water also in the tissues to prevent an increased percentage of NaCl in the body fluids. Thus edema and anasarca result. The results of treatment have given this theory strong confirmation. Peabody and his colleagues have tried the salt-free diet in cases of anasarca from various causes. In anasarca due to heart insufficiency or to interstitial nephritis the limitation of salt had little effect. In parachymatous nephritis, however, their results were striking, the edema diminishing rapidly as the sodium chloride was reduced in the diet, and returning as it was increased.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 30, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,631	472	Quincy	5	—
Chicago	744	237	Waltham	6	—
Philadelphia	—	—	Gloucester	—	—
St. Louis	—	—	Pittsfield	6	1
Baltimore	257	56	Brookline	7	1
Cleveland	—	—	North Adams	7	1
Buffalo	—	—	Chicopee	13	2
Pittsburg	—	—	Northampton	8	1
Cincinnati	—	—	Medford	6	1
Milwaukee	—	—	Beverly	6	—
Washington	—	—	Hyde Park	2	1
Providence	69	17	Newburyport	—	—
Boston	234	57	Leominster	5	3
Worcester	46	10	Melrose	6	2
Fall River	45	15	Woburn	—	—
Cambridge	23	2	Marlborough	4	1
Lowell	37	8	Westfield	3	1
Lynn	25	6	Peabody	—	—
New Bedford	32	10	Revere	6	1
Springfield	29	8	Clinton	2	1
Lawrence	32	4	Attleboro	4	2
Somerville	23	5	Adams	—	—
Holyoke	32	12	Gardner	—	—
Brockton	9	4	Milford	—	—
Malden	9	2	Weymouth	2	0
Salem	17	4	Framingham	5	—
Chelsea	21	6	Watertown	5	3
Haverhill	10	4	Plymouth	—	—
Newton	8	3	Southbridge	1	—
Fitchburg	8	4	Wakefield	—	—
Taunton	12	2	Webster	—	—
Everett	10	3			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MARCH 27, 1907.

PETTUS, W. J., assistant surgeon-general. Granted leave of absence for four days from March 27, 1907. March 27, 1907.

STONER, G. W., surgeon. Granted leave of absence for four days from March 18, 1907, under paragraph 189 of the Regulations.

BANKS, C. E., surgeon. Leave of absence granted for fourteen days from Feb. 21, 1907, revoked. March 26, 1907.

CARRINGTON, P. M., surgeon. Granted leave of absence for three days from March 23, 1907, under paragraph 189 of the Regulations.

LUMSDEN, L. L., passed assistant surgeon. Granted leave of absence for one month from March 18, 1907, on account of sickness, with permission to leave his station. March 21, 1907.

FOX, C., passed assistant surgeon. Granted leave of absence for one month from March 28, 1907. March 27, 1907.

COLLINS, G. L., assistant surgeon. Granted leave of absence for one day. March 22, 1907.

LONG, H. D., assistant surgeon. Relieved from temporary duty at the Government Hospital for the Insane, Washington, D. C., and directed to rejoin his station at Ellis Island, N. Y. March 22, 1907.

GUTHRIE, M. C., assistant surgeon. Relieved from temporary duty at the Government Hospital for the Insane, Washington, D. C., and directed to proceed to Ellis Island, N. Y. March 22, 1907.

PORTER, J. Y., sanitary inspector. Directed to proceed to Pensacola, Fla., for special temporary duty. March 22, 1907.

JACKSON, J. M., Jr., acting assistant surgeon. Granted leave of absence for eleven days from March 14, 1907. March 25, 1907.

STANTON, J. G., acting assistant surgeon. Granted leave of absence for three days from March 20, 1907. March 26, 1907.

SAFFORD, M. V., acting assistant surgeon. Directed to proceed to Ellis Island, N. Y., for special temporary duty, upon completion of which to rejoin his station at Boston, Mass. March 22, 1907.

SMALL, E. M., acting assistant surgeon. Granted leave of absence for eight days beginning April 15, 1907. March 21, 1907.

THURSTON, E. J., pharmacist. Relieved from duty at Gulf Quarantine Station and directed to proceed to Mobile Quarantine Station, reporting to the medical officer in command for duty. March 26, 1907.

LA GRANGE, J. V., pharmacist. Relieved from duty at Boston, Mass., and directed to proceed to Savannah, Ga., reporting to the medical officer in command for duty and assignment to quarters. March 26, 1907.

MCKAY, M., pharmacist. Relieved from duty at Savannah, Ga., and directed to proceed to Gulf Quarantine Station, reporting to the medical officer in command for duty and assignment to quarters. March 26, 1907.

HOLT, E. M., pharmacist. Relieved from duty at Wilmington, N. C., and directed to proceed to New Orleans, La., for duty at the New Orleans Quarantine Station. March 21, 1907.

BOARD CONVENED.

A board of medical officers was convened to meet at Seattle, Wash., March 28, 1907, for the purpose of making physical examination of an alien. Detail for the Board: Assistant Surgeon H. G. Ebert, chairman; Acting Assistant Surgeon F. R. Underwood, recorder.

APPOINTMENTS.

DR. CHARLES A. PORTER has been promoted to the position of Surgeon to the Massachusetts General Hospital.

DR. FRED T. MURPHY has been appointed Surgeon to Out-Patients at the Massachusetts General Hospital.

LECTURE.

MEDICAL OFFICERS OF THE ORGANIZED MILITIA: THEIR DUTIES IN WAR.

MAJOR CHARLES LYNCH, surgeon, General Staff, United States Army, will give a lecture for the benefit of the medical officers of the Massachusetts Volunteer Militia on Wednesday, April 17, at 3 P.M., in the Board of Officers' room, South Armory, Irvington Street, Boston. His subject will be "Medical Officers of the Organized Militia: their Duties in War." Physicians who are interested in this work, although they may not be militia officers, are invited to attend the lecture.

SOCIETY NOTICE.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—This Society will hold its regular meeting at Hotel Nottingham, Huntington Ave., Thursday, April 18, 1907, at 7.30 P.M. Section of General Medicine. Dr. S. Justina Ermentrout, chairman. Papers: 1. Diabetes, Dr. Ermentrout; 2. Cutaneous Complications of Diabetes, Dr. Edith R. Meek; 3. Pathology and Blood Tests in Diabetes, Dr. Elizabeth Morse; 4. Pulmonary Complications in Diabetes, Dr. Margaret L. Noyes; 5. Eye Complications in Diabetes, Dr. Marguerite S. Cockett; 6. Urinalysis in Diabetes, Dr. Blanche A. Denig; Report of a Case of Splenectomy, with specimen, Dr. Mary A. Smith.

BLANCHE A. DENIG, M.D., *Secretary.*

RECENT DEATHS.

AMOS B. PAUN, M.D., M.M.S.S., of Middleboro, Mass., died at Onset, April 6, at the age of sixty years. After graduating in medicine, he practised first at East Taunton, and later at North Middleboro.

DR. ROBERT FARRIES, of New York, died on March 31. He was graduated from the Long Island College Hospital, Brooklyn, in 1865. For a number of years he maintained a large practice in the Yorkville district of the city, but for some time past had been obliged to practically retire on account of failing health.

DR. JOHN MUNRO CAMPBELL, of Greenpoint, borough of Brooklyn, N. Y., died on April 2, at the age of seventy years. He was a native of Scotland, and was graduated from the medical department of McGill University, Montreal, in 1869. A great part of his life was spent in Canada.

DR. GEORGE R. SHEPHERD died, April 6, in Hartford, Conn., at the age of sixty-five years. He was graduated from the Yale Medical School in 1866 and remained associated with the school as a lecturer. At the time of his death he was medical director of the Connecticut Mutual Life Insurance Company, on the advisory staff of the *Yale Medical Journal*, and a member of various medical societies.

BOOKS AND PAMPHLETS RECEIVED.

Official Register of Harvard University. Reports of the President and the Treasurer of Harvard College. 1905–6.

Trypsin in Cancer — A Preliminary Statement. By William Seaman Bainbridge, M.S., M.D. Reprint.

APR 1907
LIBRARY.

Original Articles.

DISEASES OF THE NASO-PHARYNX IN INFANCY.*

BY JOHN LOVETT MORSE, A.M., M.D.,

Assistant Professor of Pediatrics, Harvard Medical School; Assistant Physician at the Children's Hospital and at the Infants' Hospital; Visiting Physician at the Floating Hospital, Boston.

My experience leads me to believe that the importance of the diseases of the naso-pharynx in infancy and the frequency of their occurrence are not appreciated by the general practitioner, and that they are often either entirely overlooked or insufficiently and improperly treated. It would be impossible for me, even if I desired to do so, to take up all of these diseases, even cursorily, in the time at my disposal; consequently I shall speak only of those with which I am most familiar and which seem to me to be the most important. I shall consider them, moreover, entirely from the point of view of the pediatrician and general practitioner, which is the only way in which I am competent to consider them, and not from that of the nose, throat and ear specialists.

Before speaking of the diseases of the naso-pharynx in infancy, it will be well to run over the anatomy of this region at this age.

Nose. — The nose is relatively small and the respiratory portion very small. The height of the posterior nares at birth is from 6 to 7 mm., and the breadth between the pterygoid processes at the hard palate 9 mm. The nasal cavity consists of an upper olfactory region occupying the ethmoidal portion of the cavity, and a lower respiratory region occupying the maxillary part. The nasal cavity at birth is relatively long and shallow and the respiratory portion is very narrow. The whole opening of the posterior nares on either side is just large enough to admit the end of a medium-sized male catheter. The nasal cavity begins to increase in height directly after birth, increasing pretty rapidly during the first six months, but very slowly during the rest of infancy. The size of the posterior opening doubles in six months, after which it remains stationary until the end of the second year. At the end of the seventh month the nasal cavity begins to approach the adult shape, though it is still relatively broad.

Vomer. — The posterior edge of the vomer is nearly horizontal at birth and remains very oblique throughout infancy.

Naso-Pharynx. — The naso-pharynx is very low at birth, but is relatively long from before backward, the distance from the hard palate to the soft parts of the back of the pharynx being nearly as great at birth as in the adult. The naso-pharynx at birth is, therefore, merely a narrow passage running obliquely backward and downward from the constricted opening of the posterior nares. The soft palate is placed more horizontally than in the adult. The height of the naso-pharynx increases in the same way as that of the posterior nares.

Eustachian tubes. — The Eustachian tube is nearly horizontal at birth, but slants a little during the latter part of infancy. The opening at birth is at the level of the hard palate. It remains at this level for nine months, but later becomes distinctly higher. The tube is not only relatively, but absolutely, wider at its narrowest point at birth and during infancy than in the adult. (This may explain the ease with which catarrhal processes travel to the middle ear in infancy.) The prominence at the back of the pharyngeal opening of the tube is but slightly developed in infancy, and the fossa of Rosenmüller is therefore almost imperceptible. (Catheterization of the tube at this age is, therefore, practically impossible.)

Ears. — At birth and during infancy the external auditory canal runs inward and downward, and the membrana tympani is almost horizontal. In introducing the aural speculum, therefore, the ear must be drawn forward and downward instead of upward and backward, or the canal will be bent on itself. The petrosquamosal suture is open at birth, allowing, therefore, a close connection between the blood vessels of the brain and those of the middle ear. It is said to close at one year, although this is somewhat doubtful. The mastoid antrum is present at birth, but the mastoid cells very seldom develop during infancy. The maxillary sinus is well developed at birth. The frontal sinuses are not developed either at birth or during infancy.

Pharynx. — The connective tissue between the pharynx and the spine is very lax. The naso-pharynx is extremely vascular, and there is an abundant supply of lymphatic glands and vessels, especially in the posterior wall. The retro-pharyngeal lymph nodes form a chain on both sides of the median line of the pharynx, extending from its upper portion to its junction with the esophagus. They lie between the prevertebral aponeurosis and the muscles of the pharynx.

The lymphoid ring is well developed at birth and often more so during infancy.

Acute rhinitis. — The first disease of which I shall speak is acute rhinitis, or the common "cold in the head." This, while merely a disagreeable incident in childhood and adult life, is often a serious and sometimes a fatal malady in infancy, especially in the early months. Owing to the anatomical peculiarities already mentioned, a comparatively slight swelling of the nasal mucous membrane completely closes the nose and entirely prevents nasal respiration. This, of course, necessitates oral respiration which the young infant performs very imperfectly, especially when asleep. In fact, sleep is so broken in many instances that the baby gets little, if any rest, and on this account loses strength very rapidly. The occlusion of the nares also prevents proper sucking and interferes a great deal with swallowing, even when the food is given with a spoon or dropper. Consequently, the infant takes but little food or refuses it entirely, even if very

* Read before the Boston Society for Medical Improvement, March 4, 1907.

hungry. The temperature in these cases is always elevated, usually irregular and often very high. Loss of weight and strength is very rapid, as the result of the insufficient supply of fresh air, lack of sleep and deprivation of food, and in feeble babies may be so great as to cause death.

The following case is an example of a moderately severe case of acute rhinitis in an infant of three months that was in poor general condition as the result of an acute attack of gastric indigestion. She began to snuffle during the night of Jan. 23 and slept poorly. Her temperature was 101° F. on the morning of Jan. 24, but rose to 103.4° F. during the day, the pulse going to 160 and the respiration to 70. Nasal respiration was completely obstructed and she lay with her mouth open and her tongue out. She was able to swallow, but took almost no food and slept scarcely at all. There was no improvement during the night of the 24th. The next morning the temperature was still high, while the pulse had risen to 180 and the respiration to 80. She was very weak and slightly cyanotic. In short, her condition was such as to justify great anxiety. Fortunately, improvement began at this time and continued to recovery.

The treatment of acute rhinitis may be divided into local and general, the latter being merely supportive. Internal medication in my experience is of little use, although I think that tincture of euphrasia, in doses of two or three drops every hour, is of some benefit in the early stage of watery secretion. Liquid albolene or albolene combined with menthol and camphor in the proportion of one grain of each to the ounce is the most useful local application. It is best introduced with a dropper, with the infant on its back. In more severe cases a 1–5000 solution of adrenalin chloride introduced in the same way helps a good deal. It is rarely, if ever, justifiable to use cocaine at this age. In the severest cases it may be necessary to introduce a small rubber catheter into each nostril in order to keep the passage open and to enable the infant to breathe. I am sure that in one of my cases this procedure saved the baby's life.

The general treatment consists of fresh air, food and stimulation. Pure fresh air not only does not do a rhinitis any harm, but does it much good, the general superstition to the contrary. If the infant cannot suck it must be fed with a spoon or dropper. If it does not take enough in this way it must be fed through a stomach tube. Strychnia and brandy are the best stimulants.

A complicating inflammation of the middle ear is very common in acute rhinitis because of the anatomical peculiarities already mentioned. Suppurative inflammation of the maxillary antrum almost never develops. It is impossible to tell, however, how common milder grades of inflammation may be. The frontal sinuses, not being developed, are, of course, not involved.

Acute rhinitis is, in my opinion, a contagious disease, communicable from one person to another. Since it may be such a serious and dangerous disease in infancy, babies should be kept away from adults and older children suffering from "colds" almost as carefully as from those with the eruptive diseases. Fresh air, either in the house or out of doors, does not cause rhinitis, but is, next to the avoidance of exposure to other cases, the best preventive. A draught is hardly more dangerous. Babies that get plenty of fresh air both day and night and who are accustomed to go out in all sorts of weather have fewer "colds" than any others and bear them better when they do have them.

Diphtheritic rhinitis (membranous rhinitis). — Diphtheritic rhinitis is much more common in infancy than is usually supposed. It is generally of a very mild type and is usually not suspected until other children come down with pharyngeal or laryngeal diphtheria, and often not even then. It is, perhaps, the most common source of the epidemics of diphtheria which develop in hospitals and institutions for infants and children. My experience at the Infants' Hospital has taught me to suspect every nasal discharge in an infant, especially if it is irritating. In spite of the greatest care in the admission of cases we found it impossible to avoid epidemics of diphtheria in the hospital from this cause until routine immunization was adopted. The babies now receive 500 units of antitoxin on admission and every three weeks afterward. Since this practice was begun six years ago but one case of pharyngeal diphtheria has developed in the patients in the hospital although many unimmunized nurses and nursery maids have come down with it and many cases of diphtheria have been discovered.

The symptoms of nasal diphtheria in infancy are, as a rule, very mild. There is usually a little snuffles with a slight nasal discharge and a little nasal obstruction. There is no glandular enlargement and the constitutional symptoms are wanting or very mild. The nasal discharge, however, is often rather characteristic, being thin, watery and acrid, but, contrary to the usual statements, rarely bloody. It frequently irritates the upper lip, causing crusts about the nares and on the lip. A thin, watery, nasal discharge which irritates the lip should in an infant always be regarded with great suspicion. Such discharges should always be examined bacteriologically. The amount of the discharge varies markedly in different cases. There is almost never any membrane visible unless the speculum is used, and even then it may not be seen. The diphtheritic process practically never spreads backward and downward to the pharynx and larynx. The diagnosis must depend, therefore, in most cases on the bacteriological examination of the nasal discharge.

These cases must be isolated in the same way as cases of pharyngeal and laryngeal diphtheria. They should be given antitoxin freely. Alkaline washes introduced with a dropper, or in more severe cases with a syringe, are of some use. Strong antiseptic solutions should not be used.

In some cases, however, even in infancy, nasal diphtheria takes a more severe form. Even in these cases, however, the symptoms are due largely to nasal obstruction and not to toxemia, and resemble very closely those of acute rhinitis. One of my cases, in an infant of three months, died

in four days, apparently solely as the result of nasal obstruction and not of toxemia. No membrane was seen either by myself or by a throat specialist on several examinations. The true condition was not suspected and no bacteriological examination was made. The diagnosis of nasal diphtheria seems justified, however, from the fact that two or three days later the mother developed a very severe case of pharyngeal diphtheria.

Adenoids. — While the frequency and importance of adenoids in childhood is well recognized and their symptomatology pretty generally understood, this is not the case in regard to adenoids in infancy. They are supposed to be uncommon and of little importance, and their symptoms are very commonly overlooked or misinterpreted. They are, however, very common in infancy, and of great importance. Their symptomatology, while in many ways different from that in childhood, is, nevertheless, fairly characteristic. The evil results which they produce are, moreover, even greater in infancy than in childhood. There is, unfortunately, a general feeling in the profession, even among the throat specialists, that adenoids should not be removed in infancy, because they are liable to recur later. For this entirely insufficient reason the unfortunate babies are allowed to suffer, to have their development seriously or irreparably interfered with, and even to die. The fact is that in the majority of cases the adenoids do not recur, but even if they do and a second operation is required, that is no reason why the poor babies should be subjected during the interval to all the evils which adenoids produce when they might be avoided by an early operation. The removal of adenoids in infancy is not a difficult operation and is practically devoid of danger. Certainly there is no danger connected with the operation which should be considered for an instant in comparison with the evil and even dangerous results which adenoids may and often do produce at this age.

On account of the small size of the superior pharynx and post-nasal opening, even a small amount of adenoids may cause marked obstruction to nasal respiration. The seriousness of any interference with nasal respiration in the infant has already been noted in speaking of acute rhinitis. The constant deprivation of a sufficient supply of oxygen produces a condition of malnutrition which no method of feeding or mode of life influences in any way. No improvement can take place until the adenoids are removed or nature partially relieves the obstruction by the growth of the parts. Rickets is especially prone to develop in these cases and considerable deformities of the chest are sometimes produced. These are unimportant, however, compared with the general disturbance of nutrition. Another very serious result of the nasal obstruction is the interference with sucking. It is such an effort to suck that these babies take only enough food to satisfy the acute pangs of hunger. Lack of food, therefore, also interferes with their nutrition and development. The difficulty in nasal respiration makes them restless at night and interrupts their sleep, which again disturbs their nutrition. It is surprising how quickly and markedly they will improve in general condition after the adenoids are removed.

The following case shows most strikingly how much adenoids may disturb the nutrition in infancy and how great the benefit may be from their removal. This baby began to have snuffles when he was about three months old and soon after to have a little difficulty in breathing, especially at night. He took his food fairly well, but ceased to gain when he was four and a half months old. He managed to sleep pretty well. His head began to sweat freely at four and a half months, and a week or two later the mother noticed that his head was "soft." About the same time he began to have frequent attacks of laryngismus stridulus, especially when taking his bottle. At five months he began to have convulsions. He was seen when six months old. He was then rather poorly developed and nourished. He was moderately pale and there were circles about his eyes. His mouth was open and but little air passed through the nose. There was marked craniotabes and a moderate rosary. The throat was normal to inspection, but adenoids were felt with the finger. These were removed a few days later. He began to improve almost immediately. He had no convulsions or attacks of laryngismus after the removal of the adenoids. He took his food better and soon began to gain in weight. Two months later he was in splendid condition, the head solid, the color good, the mouth shut and the breathing quiet.

Adenoids are one of the commonest, if not the most common, cause of chronic "snuffles" in infancy. They are also almost always present in those babies that are subject to frequent "colds in the head," and are of great etiological importance in this connection. They are usually overlooked, however, because the baby does not keep its mouth open, snore at night or have the typical facies of adenoids in later childhood, there being apparently a very general impression that there can be no adenoids, or at any rate no adenoids of importance, unless these symptoms are present. This is not so, of course; frequent colds and chronic snuffles being almost as suggestive and characteristic of adenoids in infancy as these more marked symptoms are in childhood. The treatment of these affections is most unsatisfactory, moreover, unless the underlying condition is recognized. When this is done and the adenoids removed, the "colds" and "snuffles" cease almost immediately. Operation is not always necessary, however, as mild cases often yield to local astringent and stimulating treatment. I have found the following mixture very useful:

℞	Iodine,	gr. ¼ to gr. ½
	Camphor,	gr. 1
	Menthol,	gr. 1
	Benzoinol,	oz. 1

Five to ten drops of this mixture are put into the nose with a dropper every three or four hours. This, by the way, is the best method of making applications to the nose and naso-pharynx in infancy. Sprays are of little use at this age because of the fright and struggling which they induce. The drops are best put in with the baby

lying on its back so that they may run through into the naso-pharynx. Although these cases are so common and the relief from proper treatment, especially from operation, is so striking, it hardly seems necessary to give illustrative cases, as the condition is easily recognized if it is only borne in mind.

Adenoids not only cause "snuffles" and "colds," but also very frequently an irritating cough without physical signs. This cough is especially troublesome at night. Here again, treatment, unless the real source of the trouble is recognized, is of no avail. Cough mixtures and throat sprays are useless. The cough can only be controlled by stupefying the infant with bromide or paregoric. Treatment of the adenoids or their removal, however, is almost immediately successful. The following case is an example:

A baby, five and a half months old, that had never gained very well and had taken her food poorly, began to have snuffles which were soon followed by a cough at night which kept her from sleeping. The throat and lungs showed nothing abnormal. Nasal respiration was fairly free and the discharge from the nose was insignificant. The adenoids were removed when she was seven months old. The cough ceased after twenty-four hours and never recurred. Improvement in her general condition also began at once and continued.

Adenoids are, either directly or through the colds which they induce, undoubtedly the most common cause of otitis media in infancy. Repeated attacks of otitis media are almost invariably due to adenoids, and the attacks continue to recur until the adenoids are removed. The symptomatology of otitis media in infancy will be referred to later.

Adenoids are also a very common cause of sleeplessness and restlessness at night in infancy, even when there are no marked symptoms, like mouth breathing, snuffles or cough. They should always be thought of when babies sleep poorly.

The development of adenoids opens the doors of the lymphatic ring of the pharynx still wider for the entrance of bacteria and their toxic products. They are, therefore, often accompanied by and are undoubtedly frequently the cause of enlargement of the cervical lymph nodes in infancy. These nodes are not infrequently tubercular. Tuberculosis of the middle ear may also be secondary to adenoids, whether they are or are not themselves tubercular. That tubercle bacilli may be present in and pass through adenoids at this age is shown by one of my cases in which, through a mistake in diagnosis, the adenoids were removed from an infant of five months during the early stage of tubercular meningitis, tubercle bacilli being found in the adenoid tissue. The danger of tubercular infection from adenoids is, therefore, a real one and furnishes another reason for their removal.

Pharyngitis. — There is another condition in infancy which I have seen very often and which I have found very difficult to treat satisfactorily, and about which I hesitate to speak because I have never heard any one else mention it, presumably because they have not thought it worth while. For lack of a better term, I am in the habit of calling it "acute pharyngitis." The pharynx and fauces are usually only moderately reddened, but considerably swollen and markedly edematous. The condition never goes on to abscess formation. It is usually associated with a slight nasal irritation and snuffles. Cough is very troublesome especially during sleep, which is usually much disturbed. Paroxysms of difficult breathing, at times amounting to orthopnea, sometimes occur at night. Sucking and deglutition are interfered with and but little food is taken. The larynx is never seriously involved, but a secondary bronchitis is not uncommon. The temperature is always elevated, usually moderately, sometimes considerably. The usual course is from a few days to a week, but it sometimes drags on for several weeks. Recovery is the rule, but death sometimes occurs, apparently from exhaustion. Treatment is unsatisfactory. The iodine mixture, already spoken of, in the nose is of some benefit. Glycerite of tannin applied locally with a swab has seemed to do more good than anything else. Drugs internally have proved useless. The chief reliance must be placed, however, on feeding, with the tube if necessary, and stimulation.

Retropharyngeal abscess. — The retropharyngeal lymph nodes drain the cavities of the cranium, pharynx, nose and middle ear. They are, therefore, liable to infection from any of these cavities. Infection results, as with other lymph nodes, in simple adenitis or suppuration. Several nodes are usually involved in simple adenitis, but suppuration rarely takes place in more than one. Suppurative inflammation is accompanied by a cellulitis of the surrounding tissues. Owing to the looseness of the connective tissue between the pharynx and the spine, large accumulations of pus are possible. Any of the pus-forming organisms may cause suppuration and the tubercle bacillus has been found in a few cases. Retropharyngeal adenitis always precedes retropharyngeal abscess. The symptoms of retropharyngeal adenitis are, however, not characteristic, being very similar to those of a pharyngitis. Inspection shows nothing definite, but the enlarged nodes can usually be easily felt by the finger. Adenitis usually results in resolution, but occasionally goes on to suppuration. Originating as it always does in a single laterally placed node, the abscess is situated to one side of the median line and is in the lateral wall rather than in the back of the pharynx. It may be high up or low down, according to the location of the node which is involved.

The first symptom of retropharyngeal abscess is usually unwillingness to take food or difficulty in swallowing. In the beginning this is probably due to pain, later to the mechanical obstruction of the tumor. Modification of the voice and difficulty with respiration next develop. These vary according to the location of the tumor. If the abscess is in the upper portion of the pharynx the cry is nasal and nasal respiration is chiefly disturbed. The mouth is kept open and the breath-

ing is snoring and snuffling. If the abscess is low down the cry is laryngeal and the respiration is stridulous, like that of laryngeal spasm or stenosis. In these cases the respiratory murmur is diminished and many moist râles are heard. These may be due to a complicating bronchitis, but are usually the result of the interference with respiration. In the acute cases the head is held in a most characteristic position from the first, the neck being extended and the head turned to one side. In the subacute cases this may not appear for some time. Swelling of the lymph nodes at the angle of the jaw on the affected side soon develops and may become very marked. The temperature is usually high and irregular.

The following case in an infant of nineteen months, which developed under my observation, is fairly characteristic, although the swelling in the external lymph nodes appeared earlier than is usual. It was noted Nov. 10 that he was feverish, did not care to eat and kept putting his hands in his mouth as if it was sore. Careful physical examination, including inspection of the mouth and throat, showed nothing abnormal except slight enlargement of the lymph nodes about both sternomastoids. The temperature was 103° F., the pulse 160 and the respiration 56. The next day he held his head rather rigidly and cried if it was moved. The cervical lymph nodes were rather more swollen, especially on the left. The throat was still negative to inspection. The next day the head was held very rigidly and bent toward the left shoulder. The swelling of the lymph nodes was larger but the throat was negative both to inspection and palpation. The temperature ranged between 101° F. and 104° F. On the 13th he began to have a good deal of mucus in his throat, and digital examination showed a little indefinite soft swelling in the left side of the pharynx. The condition was otherwise unchanged. On Nov. 14 there was much difficulty in swallowing. The swelling of the cervical lymph nodes and the position of the neck remained unchanged. The swelling in the pharynx gradually increased but did not become distinctly elastic until the 18th, when it was opened and a teaspoonful of pus let out. The opening closed during the night and the swelling was much larger on the 19th. It was then opened very freely and two teaspoonfuls of pus let out. He slept all the next night and began to take more food almost immediately. The abscess continued to discharge for three or four days longer, and the swelling was entirely gone on Nov. 26.

This case was operated on as soon as enough pus had formed to show where to make the incision, and none of the severe symptoms of retropharyngeal abscess had time to develop. The following case, seen in consultation, in which the condition was unrecognized and untreated, illustrates the symptomatology of neglected cases:

Five weeks previously an enlarged lymph node was noticed in the right side of the neck of a nine months' old boy. This node gradually increased in size and others appeared. At the same time he began to take his food rather poorly, as if swallowing was difficult and painful. Finally, he began to have some little trouble in breathing. The difficulty in swallowing and in breathing had steadily increased, so that during the last forty-eight hours he had been unable to swallow at all. When he lay down he immediately choked up, so that he had to be held in a sitting position. At times the difficulty with respiration became so great, even when sitting up, that it was feared that he would suffocate. He had taken no food by the mouth for thirty-six hours. Rectal feeding had been attempted, but the enemata were not retained. He had lost some weight and much color. The temperature had been moderate. There had not been much cough. There was no cyanosis when he was quiet, but when he cried it was marked. He could not lie down at all, but was fairly comfortable sitting up. His mouth was wide open; the respiration, however, was not noisy. There was slight retraction of the epigastrium and supraclavicular spaces even when he was quiet. There was marked swelling of the lymph nodes on the right side of the neck, but no involvement of the surrounding tissues, fluctuation, redness or heat. The whole right side of the throat was filled up with a large red mass. The tonsil and soft palate were pushed well forward. Palpation showed that this mass reached high up into the naso-pharynx, filled up the whole right side of the pharynx and extended downward over the larynx, leaving merely a chink through which the air entered. The larynx itself was normal, as were the heart and lungs.

The abscess was opened by a long, deep incision, the finger being used as a guide. Nearly two tablespoonfuls of dirty green pus were obtained. Relief was almost immediate. He began to breathe at once with his mouth shut, lay down and went to sleep. A few hours later he began to take food. Recovery was rapid and complete.

Although the symptoms of retropharyngeal abscess are usually so characteristic, they are very frequently misinterpreted. If the obstruction is high up, they are most often mistaken for those of a simple pharyngitis or rhinitis, although diphtheritic paralysis is sometimes suspected. If the obstruction is low down, they are often ascribed to laryngitis, either catarrhal or diphtheritic. In others, in which the signs of bronchitis are marked the primary condition in the throat is entirely overlooked and the diagnosis of bronchitis or bronchopneumonia made.

The chief reason that a retropharyngeal abscess is so often overlooked is that it is not thought of, and hence is not even considered in the differential diagnosis. Another reason is that inspection of the throat is trusted and palpation omitted. Inspection, however, is often insufficient and may lead to grave errors in diagnosis. In the majority of cases the tumor is visible, but not infrequently, especially if low down, it cannot be made out. It can always be felt if present, although if it is situated low down the finger must be introduced very deeply. In no case in which the symptoms in any way suggest a retropharyngeal abscess should palpation of the pharynx be omitted. In fact, it should always be done in every case in which there are symptoms of respiratory obstruction and also in all cases in which the symptoms point to the respiratory tract, but in which the physical signs do not satisfactorily account for the symptoms. It causes the infant only temporary discomfort and may prevent very serious mistakes in diagnosis. The swelling is usually situated in the side of the pharynx, but may be at any level. It is either tense and elastic or fluctuating. The examination of the throat should be made with a tongue depressor and not with a gag, as immediate death has in several

instances followed the introduction of a gag. Death under these circumstances is probably due to some disturbances of the vagus from the pressure of the abscess.

A sudden attack of dyspnea may sometimes be the first symptom to call attention to the local condition in the throat. In feeble infants a small abscess may develop so insidiously as to cause neither general nor local symptoms.

The prognosis of retropharyngeal abscess depends largely on the treatment. The usual termination in untreated cases is in death. This may occur slowly as the result of progressive weakness or asphyxia, but more often suddenly from laryngeal spasm or some disturbance of the function of the pneumogastric nerve. The abscess seldom opens spontaneously. If it does, and the opening is into the pharynx, death may result from suffocation or from a consecutive inspiration pneumonia. The pus may burrow in various directions, sometimes opening externally, and occasionally into the middle ear or external auditory canal. In a few instances the carotid artery has been opened. The prognosis in cases which are properly treated, that is, by incision, is very different, however, the mortality in such cases being only about 5%.

The true condition is seldom recognized early enough to have cold applications externally do any good. It is much more reasonable to endeavor to hasten suppuration by the use of poultices and hot applications to the throat. Spontaneous evacuation should never be awaited. The abscess should be opened as soon as the evidences of suppuration are present. It does no harm to make an incision even before this happens. Incision through the mouth is much preferable to incision through the neck. The drainage from the internal incision is almost always satisfactory, and, if not, can be made so by another incision or by dilating the original one. Secondary infection through the wound, while possible, is so unusual that it ought not to be considered in any way to contra-indicate the internal incision. The external operation is a delicate one and requires a skillful surgeon and assistants, while the internal operation can be performed by any physician at any time without skilled aid. The external operation, moreover, requires dressing and leaves a scar, while the internal calls for nothing but cleansing of the mouth and the occasional expression of the contents of the abscess with the finger.

The incision is best performed with the infant in the upright position. If it is tipped forward the instant the incision is made there is no danger of the pus entering the air passages. The knife should be guarded except at the point. A gag should never be employed because of the danger of sudden death from its use, but the mouth held open with the finger or a tongue depressor. With these also care must be taken not to open the mouth too widely. It is usually well to enlarge the incision with the finger in order to favor thorough drainage. The abscess should be squeezed once or twice a day with the finger in order to keep up drainage and to prevent the opening from closing. The mouth should be washed out from time to time with some mild antiseptic solution.

Otitis media. — While, strictly speaking, otitis media is not a disease of the naso-pharynx, yet it is in infancy so almost invariably secondary to diseases of the nose and naso-pharynx that it seems justifiable to speak of it in this connection. The anatomical peculiarities of the nose, naso-pharynx and Eustachian tube in infancy, already referred to, explain the frequency of otitis media at this age. In some cases the catarrhal inflammation undoubtedly extends directly up the Eustachian tube, while in others the primary lesion is probably a blocking of the tube with a secondary inflammation. There is no condition in infancy, I think, regarding which there is a more general lack of knowledge among the profession as a whole and a more general misapprehension as to the symptomatology than otitis media. Very few physicians seem to realize the frequency of this condition in infancy and its importance in differential diagnosis. I have learned to look for it in all cases of doubtful diagnosis and to consider it as a possible cause for any symptoms not otherwise easily explainable in the course of other diseases. No physical examination in infancy, in which other definite signs sufficient to account for the symptoms are not found, should be considered complete without an examination of the ears. They should be considered especially when there have been, or are, diseased conditions of the nose or naso-pharynx present, even if these are very slight.

One reason why otitis media is so frequently overlooked is, as already stated, the general misapprehension as to the symptomatology of the disease at this age. Physicians are constantly on the lookout for earache and tenderness over the mastoid and, if they do not find them, rule out trouble in the ear without further investigation. On the other hand, they rarely think of inflammation of the ears as the possible explanation of an obscure fever or of peculiar symptoms without obvious cause. Many infants with acute inflammation of the middle ear, however, show no signs of pain at any time, and many others, who evidently have pain somewhere, show nothing by their actions which will attract the attention of the physician to the ears. Babies with earache rarely put their hands to their ears. On the other hand, sick babies are very likely to wave their arms about, to grab at their ears and pull their hair. The usual symptoms of earache are sharp cries, restlessness and inability to sleep. Apparent tenderness on pressure over the mastoid is another most unreliable guide. Tenderness over the mastoid is very unusual in simple acute inflammation of the middle ear, and on the other hand, most sick babies will cry out if firm pressure is made on any part of their body. Mastoid inflammation is very rare at this age on account of the undeveloped condition of the mastoid cells. Tenderness over the mastoid can, therefore, hardly be expected. In fact, in most of the cases

of otitis media in infancy there are no symptoms which attract attention directly to the middle ear as the cause of the trouble. Acute inflammation of the middle ear is usually, but not always, associated with fever, which is often very high. It is also very commonly associated with reflex nervous symptoms which direct attention away from the ears to other parts of the body. Among the more common of these reflex symptoms are rapid respiration, vomiting and tenderness and rigidity of the neck. Convulsions are not very infrequent. On account of these reflex symptoms almost every disease but the right one is suspected, among which may be mentioned meningitis, pneumonia, gastritis, worms and dentition.

The following is a fair example of the ordinary case of acute otitis media, there being nothing about the symptoms to direct the attention to the ear except a slight "cold in the head."

An infant, thirteen months old, had had a slight "cold in the head" with loss of appetite for several days, but no fever until the day before. During the previous night she had been hot and restless and in the morning was somewhat drowsy and stupid. She coughed a little as if her throat was sore and refused her food. Careful examination showed nothing abnormal except slight enlargement and reddening of the tonsils. The temperature was 103° F., the pulse 160 and the respiration 60. Further examination showed reddening and bulging of both ear drums. The ears were opened in the afternoon with a free discharge of pus from both. The temperature dropped to 99° F. and the pulse to 120 during the next twelve hours.

The following cases show how marked and how confusing the reflex symptoms of otitis media may be and how easily they may draw attention away from the real seat of trouble.

A six months' old baby was taken suddenly sick Feb. 18 with fever, cough and difficulty in breathing. He lost his appetite, but showed no other symptoms of gastro-enteric disturbance. He was taken to a physician Feb. 21, who found the temperature 104.2° F., the pulse 160 and the respiration 52. He sent the baby to the Infants' Hospital with the diagnosis of pneumonia. The physical examination was not made until the next day. The temperature was then 100° F., the pulse 115 and the respiration 38. The physical examination was entirely negative, and while the picture was not that of a pneumonia and the lungs were negative, the disproportion between the rate of the pulse and that of the respiration pointed to a certain extent to some pulmonary trouble. That night the temperature and pulse rose rapidly while the rate of the respiration remained the same, thus pointing much less strongly to the lungs. The next day, the 23d, the ears were examined and considerable reddening of the right membrana tympani was found. Bulging occurred the next day. Paracentesis was performed and a small amount of pus let out. The left drum was also reddened, but did not bulge. The temperature immediately dropped and showed a tendency to run lower. On the 26th, however, it rose again, as did the pulse and respiration, the respiration rising again out of proportion to the pulse. Nothing could be found in the lungs, however. Examination of the ears showed that the right ear was not discharging freely and that the left drum was bulging. Paracentesis was done on the left ear and the discharge re-established in the right. The temperature and pulse dropped immediately and were followed in twenty-four hours by the respiration, all remaining normal afterward. In this case the onset and general picture in the beginning were those of pneumonia, and although nothing abnormal could be found in the lungs, the disproportion between the pulse and the respiration continued to point strongly toward them. The diagnosis would have remained obscure without the examination of the ears.

A baby, six and a half months old, was very fussy for twenty-four hours, was constantly putting her hands in her mouth, cried if her hand was taken out of her mouth and acted as if her mouth was painful. The temperature was 105.2° F. The physical examination, which did not include the ears, showed nothing abnormal except a slight swelling of the gum over the lower middle incisors. A diagnosis of difficult dentition was made and the gum lanced over the lower middle incisors. Lancing the gums was followed by temporary relief, but within twenty-four hours the temperature was up again and all the symptoms had recurred. The ears were then examined and reddening and bulging of the left drum found. Paracentesis was followed by a profuse sero-sanguinolent discharge with marked relief of the symptoms and a rapid fall in the temperature, which did not rise again. In this case it would have been very easy to have continued to attribute all the symptoms to difficult dentition, as was done when the infant was first seen.

In the following case the symptoms were most unusual and misleading, all pointing to some obscure cerebral condition, either acute or chronic. The true condition was not suspected, although the patient was seen by a number of men, all of whom were well aware of the importance of ear disease in infancy as well as of the variety of its symptomatology.

A baby, aged fifteen months, had a good family history. There was no history of nervous or mental disease or anything to suggest syphilis. She was delivered by instruments, the head presenting, and was normal at birth. She had always been well except for chicken-pox at thirteen months. Her parents said that she was unusually bright mentally. She had walked alone for a month or more.

On Dec. 13 she tripped on the floor and fell, striking her head on the chair. She did not appear to be much hurt. Dec. 22 she began to have "convulsions," which continued up to the time of entrance to the Infants' Hospital, Dec. 30. She had a slight cold and vomited several times daily. The bowels moved daily and the movements were normal. She was in good general condition, but there was moderate pallor of the skin and mucous membranes. There were no evidences of rickets. The fontanelle was 1½ cm. in diameter and slightly depressed. She did not open the left eye quite as wide as the right, but closed both vigorously. The motions of the eyes were normal and the pupils reacted quickly to light. She both saw and heard. There was no rigidity of the neck or back. There was no spasm or paralysis of the extremities. The knee-jerks were equal and somewhat exaggerated. Kernig's sign was absent. All the organs were normal. The urine was pale, acid, of a specific gravity of 1,008 and contained no albumin.

She slept well and was perfectly quiet when asleep. When awake there was almost always tremor of the head and arms, although she was sometimes quiet for a short time. This tremor was rhythmic and very rapid. It was most marked in the head and arms, although it was also present in the body and legs. She

was very easily excited and frightened. She then became rigid and threw herself about, crying loudly. The cry was interrupted at short intervals, but the rhythm was much less rapid than that of the tremor. In these attacks the tremor was much more marked and more rapid. In some of the attacks there was also nystagmus, usually lateral, but sometimes vertical. The temperature was normal at entrance and never went above 99.6° F. The pulse and respiration were somewhat rapid for the first two days, but afterward showed nothing worthy of note.

Her stomach was washed out and her bowels moved with castor oil. The vomiting ceased at once and did not recur. The movements were normal. Moderate doses of bromide and chloral had no effect. Her condition continued unchanged and there was no change in the physical signs. The fundi of the eyes showed nothing abnormal.

She was seen by three specialists in nervous diseases, all of whom agreed that the fall was a coincidence and that there was no acute cerebral process. They said that the history of normal mental development must be wrong and that only a congenital cerebral defect could account for the symptoms. The medical men who saw her did not agree with this diagnosis, but also ruled out meningitis and injury as the cause of the symptoms. They were, however, unable to make any diagnosis.

Her ears were examined Jan. 4 as part of a routine examination of all the babies in the hospital. Both drum membranes were generally reddened and bulged in their upper posterior portions. Paracentesis showed pus on both sides. Improvement was almost immediate, and after the first few days was very rapid. The ears were normal on Jan. 14, and she was discharged well a few days later. There has been no return of the symptoms.

In the following case the location of the reflex symptoms led to a diagnosis of cervical Pott's disease and later to one of meningitis.

This baby, sixteen months old, had a good family history, had always been well and had never been exposed to tuberculosis. She began to be fretful and irritable Aug. 9. She did not move about as much as usual and preferred to lie as quiet as possible. She cried out when moved and also many times in the night. Her appetite became poor and she lost weight steadily. There was a slight diarrhea at first, but after a week the movements became normal in number and character. Aug. 21 she began to hold her head backward and the neck rigid and tender. She was sent to the Children's Hospital Aug. 22, with the diagnosis of cervical Pott's disease. During the next two days her temperature ranged between 103° F. and 104.6° F., the pulse between 120 and 130 and the respiration between 25 and 30. She continued to hold her head backward and rigidly and movements of the head caused pain. No new symptoms developed. The surgeons ruled out cervical Pott's disease, but suspected meningitis.

She was in good general condition. She looked and acted sick, but although very fretful was perfectly conscious. The anterior fontanelle was 1½ cm. in diameter and level. The pupils were equal and reacted to light. The throat was slightly reddened. All the organs were normal and there were no evidences of rickets. There was no spasm or paralysis of the extremities. Kernig's sign was absent. The knee-jerks were not obtained. She held her head a little backward, and motion forward was resisted and seemed to cause a little pain. The cervical lymph nodes were slightly enlarged. The urine was normal. The white blood count was 20,000.

Examination of the ears showed reddening and bulging of both drums. Paracentesis was followed by a free discharge of muco-pus, with almost immediate relief of the symptoms.

Since there is so little characteristic about the symptomatology of otitis media in infancy, and since the symptoms are so misleading, this condition should be considered in every acute illness at this age and the ears examined. The only way to determine satisfactorily whether or not there is inflammation of the middle ear is to examine the ear with a speculum. All other methods of examination are incomplete and necessarily misleading. The examination of an infant's ears is not, however, a simple matter and requires considerable experience. The results, however, are well worth the time required to master the technique. The method of introducing the speculum rendered necessary by the anatomical peculiarities of the external auditory canal at this age has already been referred to. A smaller speculum than comes with most sets is necessary. The infant should be held firmly in the nurse's lap, sitting sidewise, with the head against the nurse's breast. Unless there is plenty of daylight, a kerosene lamp will be found more satisfactory than anything else in examining the ears.

In cases of a more subacute type, the symptoms are mainly those of confined pus, and the hectic temperature, often associated with chills, and the apparent absence of a local cause often lead to the diagnosis of tuberculosis or malaria. The following case of this variety was mistaken for malaria:

A boy, twenty-two months old, who lived in a malarial district, had always been delicate and pale. He had had a cough since an attack of bronchitis three months before, and had also had a slightly elevated temperature during this time. During the last two weeks he had seemed worse and the temperature had ranged higher. The night before he was seen he had had a chill, followed by a temperature of 105° F., and sweating. Nothing abnormal had been found on physical examination except pallor and slight enlargement of the spleen. The urine showed nothing abnormal.

An almost positive diagnosis of malaria had been made on the basis of the chills, fever and sweating, the enlargement of the spleen, the pallor and the apparent absence of any other cause for the symptoms. Examination of the blood showed no plasmodia and 30,000 white cells, a finding entirely inconsistent with malaria.

An examination of the ears, which had hitherto been overlooked, disclosed the seat of the trouble. Pus was found on both sides and evacuated. Improvement was continuous and rapid from that time.

In other cases the inflammation may run its course with little or no rise in temperature and with very slight constitutional, local or reflex symptoms, a discharge from the ear being the first thing noted. This is especially likely to be the case in feeble babies, the amount of reaction apparently depending a good deal on the general

condition of the infant. The following cases are examples:

A boy, three and a half months old, had always been improperly fed and had always had colic, vomiting and diarrhea. He had recently lost weight very rapidly. He was admitted to the Infants' Hospital March 12.

He was fairly developed and nourished, but rather pale. Physical examination was negative except for a slight rosary. A routine examination of the ears a few days after entrance showed nothing abnormal.

He responded very quickly to proper food, stopped vomiting and after a few days had normal movements, but did not gain in weight. On March 26 the temperature suddenly rose to 102.8° F. The pulse and respiration did not rise, however, and no other symptoms developed. Nothing abnormal was found on physical examination until the ears were reached, when both drums were found slightly inflamed. No treatment was instituted. The inflammation in the ears rapidly subsided in the next twenty-four hours, and with it the temperature fell to normal and remained there.

A three months' old baby entered the Infants' Hospital March 7. No history came with her. She was emaciated and the skin was mottled. The anterior fontanelle was small and depressed and there was a slight rosary. The physical examination was in other respects negative. She took her food well, seldom vomited, had nearly normal movements and gained in weight. She had no fever at any time and showed no symptoms pointing to aural trouble. Nevertheless, a discharge from the right ear appeared March 16.

Much has been written as to the importance of the patency of the petrosquamosal suture in infancy, as favoring the extension of inflammation from the middle ear to the meninges. This danger has, in my experience, been very much overestimated, and can, to all intents and purposes, be disregarded. The mastoid antrum is present at birth, but the mastoid cells are almost never developed during infancy. Mastoid inflammation is, therefore, infrequent in connection with inflammation of the middle ear at this age, and if it occurs is usually not as serious as in later life.

The proper treatment of otitis media in infancy requires more knowledge of the ear than is possessed by most general practitioners. It requires special knowledge to determine whether or not a given case requires paracentesis or whether it will quiet down under simple measures. In general it is far wiser in a doubtful case to err by doing an unnecessary paracentesis than by letting it go without operation. Local treatment should be extremely simple: irrigation with warm water, heat externally, bromide internally. Under no conditions should oily substances be introduced into the ear, and it is rarely advisable to use any local medication. Paracentesis is not a difficult operation, providing the drum membrane can be distinctly seen. It is almost impossible to do any harm by a paracentesis, if reasonable care is exercised. It is, therefore, a safe operation for the general practitioner. He should be prepared for it and ready to do it whenever necessary.

SOME SURGICAL ASPECTS OF EMPYEMA.*

BY F. B. LUND, M.D., BOSTON.

THERE are numerous fallacies regarding the treatment of empyema, which during my period of surgical activity have been exploded. I well remember a period when it was believed that empyemata due to the pneumococcus got well with repeated tappings without permanent drainage, while those due to the streptococcus required opening of the chest, so that patients were kept in the medical wards of the hospital after the needle had revealed pus, until cultures had been made and the exact nature of the organism determined. This procedure caused delay which was often prejudicial to the patient. Whether or not an occasional pneumococcus empyema in a child will recover without operation I do not know, but certainly in adults they all had to be operated upon after repeated tappings and in a condition both as to the danger of the operation, and the probability of a long, slow convalescence infinitely worse than it would have been with early operation, for there is every reason for early operation in empyema.

In the first place, the patient is usually attacked by the disease directly on the heels of a severe and exhausting pneumonia, and is in no condition to stand the drain of a long continued infection; in the second place, every day that passes after the development of pus in the chest exhausts the patient by the absorption of toxins; in the third place, the lamentable accident of bursting into a bronchus is, as time goes on, increasingly likely to occur; in the fourth place, in case the abscess becomes walled off and the toxic absorption is thereby lessened, those very protective adhesions, while admirable for the purpose for which they are intended, as they become firmer with time and more completely organized, serve in a most efficient manner to prevent expansion of the compressed lung after the chest is opened. All this takes no account of the increasing embarrassment of the respiration and heart's action which accompanies the filling up of the pleura with pus, and the danger that long continued compression of the lung may so consolidate it as to permanently obliterate many of the air cells and put an end to the possibility of expansion.

Even if successful lung expansion is ultimately attained, it is at the expense of dangerous and mutilating multiple rib resections, and decortications, operations to which the names of Estländer, Schede, and De Lorme are attached, operations which while invaluable in the cases which require them, one can only wish to avoid the necessity for if in any way possible.

If an empyema is operated upon and properly drained early, before extensive adhesions have formed and the lung has been anchored in its contracted position, it is a not uncommon experience for the surgeon to feel the lung expand at once, and as the fluid escapes come right up

* Read before the Boston Society for Medical Improvement, Jan. 21, 1907.

against the opening in the chest wall, a most satisfactory and pleasing experience to the surgeon, and greatly to the benefit of the patient.

In regard to the diagnosis of empyema, the surgeon is largely dependent upon the medical man, who sees the case before he does, usually makes the diagnosis and very likely has confirmed it by the exploring needle before the surgeon is called to operate for the provision of adequate drainage, so that it is perhaps to points in the technique and after-treatment that a surgical paper should be confined; but the writer feels there are certain points in the diagnosis, some in which he himself, perhaps, has been misled, to which he should allude. It is a well-known fact that in certain empyemata, especially encysted empyema, and others walled off by adhesions where the fluid is under high tension, we may get on auscultation the bronchial breathing and voice sounds ordinarily characteristic of consolidation of the lung. Delay in exploration with a needle under these circumstances nearly cost the life of a patient who was referred to the writer last summer after an erroneous diagnosis of tuberculosis of the lung, when the real lesion was an empyema of that dangerous class in which the infection of the right pleura was secondary to an intra-abdominal infection, in this case, an acute appendicitis which had recently been operated upon. Another misleading condition which occurred once in the writer's experience depends upon the fact that in a pneumococcus empyema, the leucocytes gravitate to the bottom of the cavity, so that a tapping over the upper level of the fluid may give clear serum. Misled by this condition the writer once refused to operate in a case seen in consultation, and learned afterward that the case had been successfully operated by another surgeon, who found plenty of pus.*

In the operation of tapping the chest, the needle should be introduced opposite the middle of the area of flatness, and should go in exactly vertical to the chest wall, so as to go straight for the fluid. If entered obliquely it may go a long way in the chest wall without even entering the pleura. If entered close to the bottom of the chest cavity, however, it should go slightly upward or it may hit the diaphragm or even the liver. The needle may pass through a thin layer of pus and hit the lung, which occludes it, so that the pus does not flow, or it may enter a thick layer of fibrin or the solid lung at the margin of the pus cavity. Therefore if pus does not flow at first, the needle should be slowly withdrawn until the point is disengaged, when the pus may flow, and if it does not the trocar should be pushed through it so as to push the lung tissue or fibrin out of the way. In the presence of convincing physical signs, if the first tapping is negative, the case should not be given up till the tapping has been repeated several times in the near neighborhood, varying the direction of the needle slightly.

The statement above that the needle should be put in opposite the middle of the area of flatness applies to encysted empyema or lung abscess. In the ordinary empyema which fills the whole lower part of the chest and in which the flatness naturally covers the widest area in the back, whether or not it extends upward into the axilla, the tapping is best done at the point of election for drainage of the chest which the writer has found after an experience of a large number of cases to be the eighth interspace just below and in front of the angle of the scapula, which is close to or just behind the posterior axillary line. A brief review of the literature of empyema will show the greatest diversity of opinion as to where the chest should be opened, some advising the anterior, some the mid-axillary and some the posterior axillary line. A considerable experience extending over fifteen years has shown the writer that while many cases will recover if opened in the anterior axillary line, or mid-axilla, these parts do not afford dependent drainage in the recumbent and semi-sitting positions, as does the point recommended by the writer. While the lung will expand and success will follow in cases opened toward the front in a certain percentage of cases, others, where perhaps the lung contraction and pleural adhesions are more decided, will not get well with anterior drainage, even supplemented by frequent washing out, and the writer has in several instances been forced to operate secondarily to secure dependent drainage of the chest where the anterior route had been followed at the first operation. The rib interspaces are wider in the anterior route, the ribs are flatter, and the operation is a little easier. In the back the ribs are rounder, thicker and close together, but there is so little difficulty about the operation wherever performed, that these arguments should not weigh against the posterior route.

It will be noted that the point recommended by the writer is not at the very bottom of the chest in the sitting position, the pleural reflection extending as low as the twelfth rib behind, the ninth or tenth rib in the axilla, and the seventh rib in front. The writer at one time in a considerable number of cases attempted to make the opening at the very bottom of the pleural reflection, and found that in certain cases the diaphragm came up against the opening and adhered, closing it off in some instances before the lung expansion took place, so that re-accumulation of pus took place and re-opening was necessary. In opening at the very bottom of the pleura also, the tubes run obliquely upward, and have to be bent outward when they go through the abdominal wall, so that the drainage tube has to be long and is difficult to manage. With the opening in the situation

* In the discussion of this paper Dr. Percy Musgrave made the excellent suggestion that in case there is doubt whether to open the chest, when clear or fairly clear serum is obtained on tapping a microscopical examination of the serum should be made, and the leucocyte content determined, a high count deciding in favor of operation. This procedure would be especially valuable in the cases we are able to help the most, namely, the early cases, where the fluid would be most apt to be serious, at least in the upper part of the chest. Dr. Musgrave also spoke of the fact that in streptococcus infections the fluid was apt to be rather serous than purulent, a condition which the writer has also observed.

advised the tube should go straight into the cavity, and be only long enough to go just through the thoracic wall. If it projects into the cavity it will not drain the pus which lies below the level of its upper end, and may be hit and disturbed by the expanding lung. The flanged tubes now sold for draining empyemata, self retaining *à la* collar button, are usually too short, so that the flange is doubled up in the wound, and they are also too small caliber. A double tube made by folding a half or three-quarter inch tube, with a hole cut where folded so as to present two full caliber openings inside, which we used to use fifteen years ago when we were internes, is the best arrangement. It does not do to forget to attach a transverse tube or a safety pin to prevent the tube slipping inside. This may seem an elementary matter to speak of, but I presume most of us in operating for a persistent sinus following an empyema operation have removed a drainage tube which had slipped in, usually at some time during the dressings. The removal of a tube from the chest cavity may be difficult on account of the size of the cavity and require rib resection additional to that done at the former operation.

Is rib resection to be done as a routine procedure or is it not? On looking over the literature we find many advocates of simple incision, backed up by reports of successful cases. There can be no question that many of the cases, especially of pneumococcus empyema, get well with almost any kind of drainage, but the cases of streptococcus and mixed infection, old cases with adhesions, and cases secondary to abscess of the lung require a good free opening in a dependent position. As has been shown the most favorable point for drainage, namely, close to the angle of the scapula, is in the back where the ribs are near together so that there is no room for a large drainage tube between them, so it becomes evident that that rib resection is necessary and should be performed. It takes but two or three minutes more time, is not difficult or dangerous and provides a much more satisfactory opening. If openings in front where the ribs are wide apart were efficient rib resection might not be so necessary. Rib resection may be safely performed even upon very sick cases of empyema, and may be done under cocaine, but the writer prefers a general anesthetic.

In only one case in a very large number has the writer felt that rib resection was too much of an operation. That case was an elderly patient with an empyema resulting from the bursting of an old bronchiectatic cavity into the pleura. His pulse was hardly to be felt, he was cyanotic and his condition in every way most wretched. He was operated upon in the semi-recumbent position by a simple incision in the mid-axillary line under cocaine anesthesia, drained with a large tube and ultimately made a complete recovery.

In empyema the management of the general anesthetic is of the very greatest importance. With only one available lung, with high fever, and often in case the cavity has communicated with a bronchus so that there is danger of coughing up the inhaling pus, the dangers of unskilled or careless anesthesia are evident. Ether should be the anesthetic. It should never be given in an adjoining room and the coughing, struggling patient be brought into the operating room and arranged on the table, as I have so often seen in some hospitals. The patient should be etherized on the table, with everything in readiness, the patient in the semi-recumbent position and turned slightly, not completely, on the sound side. The patient should not be turned completely on the sound side on account of the compression of the healthy lung and consequent embarrassment of respiration. The preparation of the skin, what little is necessary, should be carried out before the patient is brought into the operating room. I do not know a more depressing sight than one I have sometimes witnessed of a cyanotic patient struggling for breath, while a nurse more than wastes time rendering the skin scrupulously aseptic, preliminary to the flooding of the skin of the patient, the operator, assistants, and the entire room with the foulest kind of infected pus; yet sometimes is common sense so lost sight of amid the mazes of hospital routine that this very thing has happened.

The moment the primary stage of anesthesia is reached the chest is tapped in the eighth interspace, about one inch below and in front of the angle of the scapula, measured with the arm at the side. The reason for this is that if the point is chosen with the arm elevated above the head the scapula might occlude the opening when the arm is lowered. An incision three or four inches long over the eighth rib and parallel to it is made and carried directly down to the rib and through the periosteum. The periosteum is then quickly removed, first from the superior, and then from the inferior, surface of the rib with a sharp periosteal elevator, sticking close to the rib on the under side, and working from the inferior margin upward, so as to avoid wounding the intercostal artery. The rib is then cut through (with ordinary bone cutting forceps having a narrow inferior blade) at the anterior portion of the incision and again about three inches back, the divided anterior end being lifted up by holding forceps so that the forceps may be slid under. The rib having been removed, the thickened pleura is divided by an incision about an inch long, and this is torn open by the fingers the full length of the incision. All this takes much less time to do than to tell about. As the pus begins to flow the opening is partly closed by the hand so as to avoid the too rapid evacuation with its danger of syncope or perhaps death on the table from the sudden flopping over of the mediastinum from the abnormal position into which it has been pushed by the effusion. This danger is only present in large effusions, but in them is a very real one. After the first sudden relief of tension has taken place the hand may be removed, the patient gradually rotated on to the back with the wound projecting slightly over the edge of the table, and all the pus allowed to escape. If

it is clean, white, odorless pneumococcus pus we may look for a smooth convalescence. The foul stinking pus of an old mixed infection must put us on the lookout for trouble. The finger is introduced into the openings, the extent of the cavity is ascertained if possible, also the condition of the pleura as to fibrin deposits, thickness, etc., and sometimes at this point the lung may be felt in fortunate cases to expand and come down to the chest walls. Every effort is made to get out the thick flakes of fibrin which so often lie in the lower chest cavity, and if left behind may later block our drainage tubes and cause trouble. The anesthetic should have been removed the moment the pleura was opened, and the violent coughing which usually takes place as the last of the pus is expelled is the most effective agent in getting this stuff out. As it comes to the surface it should be caught before it drops back, and eased out by the surgeon. In case there is a good deal of this material which has not come out with the pus, I see no reason (" tell it not in Gath ") why gentle irrigation with 2% boric acid solution should not be employed unless there is connection of the cavity with bronchus, as will have been evidenced by previous coughing up of fetid pus. I am aware that irrigation is frowned upon, but used, as every procedure must be, with common sense, I have found it useful and have never seen harm from it. Of the drainage we have already spoken. Irrigation through the tube may be useful at the subsequent dressings if the tube becomes plugged with fibrin. As to the time of the removal of the tube, that, as one of my honored seniors in the profession used to remark, " requires a thousand times more surgical judgment than the performance of a laparotomy, and in those old days the simplest laparotomy " was a serious matter. The tube should be removed as soon as the lung has expanded to fill the cavity, the chest has fallen in to fill the cavity, or the cavity has been contracted by any means down to a small pocket around the end of the tube. Normal or but slightly diminished percussion note, diminution in the discharge to the amount which the irritation of the tube alone will occasion, but above all the evidence gained by introducing the finger into the opening, are, aside from the general condition of the patient, a few of the aids as to determining this point. It may be three days or six months, but tube drainage should not be prolonged a moment longer than necessary. Each surgeon must determine it for himself, which is one of the reasons why it is worth while to get a good surgeon, one who has had at least a moderate amount of experience and interest in these cases, to perform the simple operation of rib resection. A practitioner whose work is chiefly concerned with medicine is apt to make fewer mistakes in the operation than in the after-treatment of these cases. And after all it is nearly as much a part of the doctor's duty to save time and expense to his patient as to save his life.

In regard to after-treatment we must speak of the various arrangements of rubber tissue valves over the tubes, etc., designed to use the pumping action of the chest to create negative pressure and promote expansion of the lung. I have never been able to make them work, in the first place because the tubes could not be made to fill the opening or stay in position, and the coughing or movements of the patient could be counted on to loosen the tissue either from the skin or end of the tube. They require a lot of time and pains even to apply them and keep them partly in position. They do no good unless working perfectly and never do work perfectly. Therefore their use is a waste of time.

Brinkman has suggested and practised the the drainage of the chest in empyema without the use of a tube, ensuring the patency of the opening by suturing the pleura to the skin around the wound. He recommends excision of three or more ribs for his operation, which seems an unnecessarily radical procedure in ordinary empyema, however well it may be adapted to the old cases to which multiple rib resection (Estländer), excision of the entire rib between the angle and costal cartilage from the third rib to the bottom of the pleura (Schede) or decortication (de Lorme) might be considered as alternatives.

Some genius has advocated placing the empyema patient in a bath tub and letting the respiratory movements of the chest pump the water in and out and clear out the pus. The effect on the lung of constant water pressure seems to be forgotten. I would as soon have pus in my chest as water, as far as the compression of the lung is concerned. But I have always found it hard to keep patients dry and comfortable, which is so necessary to their recovery, when they were under water.

Richter has advocated simple incision of the chest as employed in Van Hook's clinic with intermittent siphon drainage such as we have all tried in suprapubic cystotomies. I should describe this drainage as complicated and unnecessary.

The use of respiratory measures to promote expansion of the lung, especially the blowing over of water from one bottle to another through a tube I have found valuable.

Of the various procedures of extensive rib resection, or decortication of the pleura, which are so interesting and important in the treatment of old rebellious cases of empyema, and which are planned to allow the chest wall to fall in or the lung to come out, it is beyond the scope of this paper to treat. If we get our cases early enough these measures are not necessary.

It is a fact noticeable in my experience that certain early cases, presumably on account of the virulence of the infection, do badly and are slow in healing, while certain of the later cases, notably those in which the effusions are walled off or encapsulated and not very great in amount,

do extremely well. As a general rule, however, the early cases do better than the late in every particular.

The results of vaccination with dead bacteria for the purpose of raising the opsonic power of the blood have recently been favorably reported on by those versed in this method of treatment in these cases. I hope that this method will be a valuable aid, but feel that the drainage of pus will still remain of primary importance.

In empyema, as a general rule, pure pneumococcus cases do well, mixed infections worse, and tuberculous cases — also invariably mixed infections — worst of all, which means as badly as possible. They are operated upon, not with a view to cure, but for the temporary relief of the lung from pressure and the system from septic absorption. They rarely heal.

Infections of the right pleura, secondary to infections in the abdominal cavity, such as appendicitis, followed by retroperitoneal infection, subpleuritic infection and abscess of the pleura either due to bursting through the diaphragm or extension through the lymphatics, are of the most serious character and are frequently fatal. Such an infection following a successful operation for acute appendicitis, and erroneously considered an acute tuberculosis of the lung, presumably on account of the fact that bronchial respiration was heard over the flat area, has been already referred to above. The lateness of the operation and reduced condition of the patient under these circumstances rendered the case most serious, but drainage of the chest by a quick operation and the devoted care and nursing of the boy's father, a brother practitioner of medicine, brought the boy through the shock and collapse which followed the operation, and he is now well.

Nursing does much for or against these very sick patients, as all well recognize. They should sit up in bed from the first, both because respiration is easier thus and drainage better. They should be carried out in the fresh air and sunlight as soon as possible, even in the New England winter.

The writer is aware that in this brief discussion he has contributed nothing new to the subject, but he feels that a review of the methods which experience and trial in the treatment of this disease have proved to his satisfaction the best, may be not without interest to his fellow practitioners. He has not attempted to deal with the statistics as to age, sex, relative proportion of infection, or had time even to look up the number of cases on which this paper is based. Statistical articles may be found in the appended bibliography. A considerable number of cases, however, come under observation in a hospital where we have so large a medical service as the City Hospital in Boston, and one has a chance to try his hand in a good many, first and last, so that he ought to get a good general idea of what procedures give him the best results.

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EMPYEMA FROM THE PHYSICIAN'S STANDPOINT.*

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ALTHOUGH the treatment of empyema is now universally acknowledged to be exclusively surgical, if we except the possible value of opsonic treatment of the sinus, yet sufferers from this condition are at first almost always under medical care and their welfare depends upon the vigilance and skill of the physician. Early diagnosis means a timely operation and speedy recovery; delayed recognition may mean not only prolonged suffering, but permanent damage or even death.

With regard to etiology, pneumonia is the most frequent antecedent; others are bronchopneumonia, sero-fibrinous pleurisy (perhaps in some cases from imperfect asepsis during tapping), pulmonary tuberculosis, typhoid, scarlet fever, septicemia, ulceration of the esophagus, subdiaphragmatic abscess or a wound. Children are often affected. Bilateral empyema [1] is rare, occurring almost always in children under ten years, and is preceded by bilateral pneumonia, the interval being usually only a few days, but exceptionally two months. I saw a case in 1905 with Dr. Cassidy of Norwich, Conn., in which empyema following pneumonia occurred first on one side and then on the other, with a favorable termination.

Heberden Beall [2] reports a case of empyema

* Read before the Boston Society for Medical Improvement, Jan. 21, 1907.

[1] Hellin: Berl. klin. Wochenschr., Nov. 6, 1905.

[2] Jour. Am. Med. Asso., 1906, May 12

due to the influenza bacillus, and refers to another published by Boggs. Others have been observed.

The ordinary story of an empyema is that the patient has had pneumonia and then got better, but not entirely well, and has since been growing pale and weak, or the symptoms of pneumonia may have largely disappeared for a time and then more or less reappeared. Sometimes the empyema is apparently primary, with symptoms like pneumonia. In looking up the cases I have had at the Massachusetts General Hospital in the ten years from 1896 to 1905 inclusive, in all 21, I find that the interval between the first thoracic symptoms and the discovery of pus was less than twenty days in but 3 cases, averaging 49; while the stay in the hospital before pus was found averaged only four days. For 17 cases the average time after entrance when pus was found was one and one-half days. Of course, cases which are actually proved to be empyema before entrance are put at once under surgical care. The above figures tend to confirm what my experience has led me to believe, that there is often deplorable and unnecessary delay in recognizing this disease. A natural inquiry would be, How soon after the onset of a pneumonia which is followed by empyema is it possible to detect this complication? I do not feel able to answer this question, but whatever it may be at the present time, it is to be hoped that eventually the diagnosis will be still more speedy. As Musser recently said in an inspiring paper on Acute Infections of the Thoracic Cavity,[3] "It is no credit to the profession at the present time to send to the surgeon a patient with the chest half filled with pus or even with half a pint or a pint of such accumulation." In three cases, however, I had opportunity to watch the whole process.

One was a negro male, aged twenty-five, who entered the hospital on the sixth day of a pneumonia. On the twenty-eighth day of his illness he was tapped with a negative result. One week later he was tapped twice, the second time successfully; but the amount of pus was shamefully large, about three pints in all, including what the surgeon, Dr. Conant, got the same day.

A woman, aged twenty-six, entered on the sixth day of what seemed like a bronchopneumonia, complicated by pleurisy. On the next day, twelve or fourteen ounces of a rather turbid but sterile fluid were removed; two days later, there was a dry tap, but the needle passed through thick material before entering the pleural cavity. On the twenty-first day of her illness pus containing pneumococci was obtained, and the surgeon, Dr. Balch, immediately furnished exit to one and one-half pints.

A boy of five years entered on the sixth day of a pneumonia, had a rapid lysis on the eleventh and twelfth days, fever again on the thirteenth and pus on the twentieth, Dr. A. N. Broughton giving vent to twelve to fifteen ounces the same day.

These few experiences would suggest the necessity for great vigilance in regard to suppuration in acute thoracic cases lasting over two weeks.

With regard to diagnosis, this is not the place to enter on an indiscriminate enumeration of textbook facts. The disease may be insidious and hence escape detection, unless the physician is faithful in physical examination. Marked pallor, vomiting, sweating, a frequent dry choking cough are common symptoms. Pain may not be present. An infant, says Parrish, may be pretty comfortable in bed, without pain, cough, dyspnea or fever and yet have empyema. The white count is important, being usually high. In 7 of my cases over fifteen years old it averaged 14,590; and in 6, aged from two to twelve years, 36,100.

One boy, five years old, on the sixth day of pneumonia, had a leucocytosis of 20,800, got better, then had fever again and on the second day of this relapse had a white count of 36,400, six days before pus was found.

The only two exceptions to this rule of leucocytosis were both interesting cases.

Mrs. C. B., an Italian, aged twenty-six, for ten days before entrance had some pain in the back on taking a deep breath, but no dyspnea nor cough. When first seen, her only complaint was slight abdominal pain, perhaps accounted for by retroversion and a prolapsed ovary. White count, 8,400. Three days later pus containing staphylococci was found in the right chest. She was operated on by Dr. Brewster, and fit to be sent to the Convalescent Home thirty-two days after her first symptoms.

Mr. T. V., aged twenty-nine, was perfectly well till two weeks before entrance, when he had chilliness, perspiration, dyspnea and a catch in the right chest. He vomited once. The heart was displaced to the left, the liver dullness was increased downwards, the white count was 7,600. There was distinct whispering pectoriloquy over the fluid in the right chest. Tapping removed thick pus, but surgical treatment (Dr. A. T. Cabot) evacuated both pus and echinococcus cysts.

Localized tenderness and localized edema are important guides to a correct diagnosis. Some authors, including Musser, speak of friction as an important early sign, to be sought particularly along the margin of the lobes. In regard to this I confess inexperience. According to Holt, loud pleuritic friction may also be heard over abscess of the lung. Fremitus and râles[4] may persist in spite of empyema. Vesicular breathing is almost always abolished. There is often a distant, ghost-like, bronchial respiration and voice. Whispering is seldom conveyed distinctly through pus, yet I have heard it more than once, as, *e. g.*, in the hydatid case above related.[5]

As Musser points out, if we are to detect intrathoracic infections early, we must go over the chest in a painstaking and minute way.

The x-ray is worth employing in a doubtful case. Recently it gave me distinct help. Thickening of the pleura may give a shadow simulating or obscuring a collection of pus, but yet this method should not be discarded.

Exploratory puncture remains as the nearly decisive test of the condition under discussion. Certain practical suggestions may be worth while

[3] Trans. of the Section on Practice of Med., Am. Med. Asso., 1906.

[4] Dr. J. W. Parrish: Brooklyn Med. Jour., Feb., 1905.

[5] Also in two cases seen since this paper was read.

in this connection. It should be absolutely certain that the apparatus used is in perfect working order. I once saw a case of pleurisy with effusion which had been twice tapped, at intervals, first by the attendant physician and then by a consultant, both using an impervious instrument. If the apparatus is capable of compressing air as well as rarefying it, we should make sure that the valves are properly arranged. I nearly lost a patient once because an assistant forced air into his chest. An arrangement with trocar and canula, yet with aspiration unimpeded, seems to me the best. In case of doubt we can make sure that the canula is not plugged. The canula should be of large caliber. A negative tap with a small needle is inconclusive. In case fluid does not at once appear, it is well to wait a little while, maintaining a good vacuum meanwhile. We may thus obtain at last a little viscid pus.

In December, 1905, I saw Mrs. A. in Wolfboro, N. H., with Drs. Getchell, Scott and Cotton. Eight weeks before she had bronchitis which lasted three weeks, then for two weeks she was pretty well, when three weeks before I saw her she grew worse and now for three days had been very ill. The day before my visit she had been tapped three times with a negative result. We all agreed that the story and the signs pointed to empyema, so that it seemed proper to explore once more, using the largest aspirating trocar. At first no pus appeared, but after a minute or two a very small quantity was obtained. Upon surgical operation, no real collection of pus was discovered, but an infected area with thick masses of fibrin. Drainage was instituted, and the patient recovered.

In serious cases showing strong signs of intrathoracic suppuration and yet yielding nothing upon aspiration, after careful deliberation, it may be justifiable to invoke surgical exploration just as we do when we suspect a deep cervical abscess. Dr. G. M. Garland of this city reported to me verbally years ago a case in which he urged this procedure, with a happy result.

As to the exact place in which to tap, if one has the choice it is best to go in where the surgeon would naturally institute drainage, *e. g.*, the seventh or eighth space in the posterior axillary line. It has seemed to me that doctors are more apt to put in their needle too low than too high. When pus is found, unless there is a very large amount, it is probably more convenient for the surgeon if we do not draw off more than is needed for diagnosis. Operation should follow a successful aspiration, if possible, the same day, because of the chance of infection along the track of the physician's instrument as it is withdrawn. This suggestion is fully warranted by actual observation.

Employing aspiration in the manner indicated, and of course with due aseptic precautions, I have never yet had reason to regret its use.

With regard to results in my 21 cases, 17 did well, including 1 case of pulsating empyema necessitatis, who was tapped and also operated upon two months after his illness began, and in less than two months later had the sinus healed and good respiration; 2, aged two and eight years respectively, were taken home against advice shortly after operation " not relieved "; 1, aged sixteen, did well, but ten months later had symptoms of a pulmonary abscess, although he looked well, and the wound was firm; and a fourth, aged seventy-one, who had an old neglected affair, when last seen was failing, with unexpanded lung, although his life has been preserved for six years by an excision of portions of nine ribs, (Dr. E. A. Codman).

Cases of Empyema Recorded on the Surgical Side of the Massachusetts General Hospital for the Ten Years, 1896–1905, Inclusive.

Males,	193
Females,	60
Total,	253
Not treated,	1
Discharged well,	14
Discharged relieved,	209
Discharged not relieved,	5
Died,	24

PERIDUCTAL MYXOMA OF THE BREAST.

by W. P. graves, m.d., boston,
First Assistant Visiting Surgeon, Free Hospital for Women; Assistant in Gynecology, Harvard Medical School.

The tumor described in the following case is reported on account of the somewhat unusual pathological condition found and on account of the extraordinary size to which it was allowed to grow before surgical intervention.

Mrs. M., thirty-eight years old, entered the Free Hospital for Women Jan. 24, 1907. Three years before entry she had noticed a small lump in her right breast, and was advised by her physician, Dr. Hubert T. Holland, to have it surgically removed immediately. Fearing to undergo an operation, she then consulted a cancer healer, who treated the tumor with pastes and other methods commonly employed by such practitioners. The tumor continued to grow slowly and steadily until the fall of 1906, when it began to increase in size with great rapidity. So rapid and marked was the enlargement of the breast that the patient finally began to distrust the assurance of her adviser that the medical treatment which he was applying was drawing the poison from her system, and that the tumor would soon burst and dry up, and in real alarm again consulted Dr. Holland, who at once sent her to the hospital. The patient, on examination, appeared to have suffered some, but no great, loss of weight. The right breast was occupied by an enormous tumor somewhat nodular in contour, and rather soft, but not cystic in consistency. The tumor was so large and cumbersome that the patient when sitting down was obliged to rest it on a table or on the arm of a chair. It was not apparently attached to the pectoral muscles, and there was no glandular involvement of the axilla. The left breast was entirely negative, being somewhat emaciated. The tumor seemed vascular and transmitted a well-marked pulse throughout its substance. The patient's temperature was about 102°, the pulse 120, and there was a systolic murmur at the apex of the heart. Menstruation had ceased two months before entering the hospital, but there was no sign of pregnancy.

The operation performed on Jan. 29, 1907, was a comparatively simple one, consisting merely in amputation of the enlarged breast. The tumor was entirely discrete, and was readily peeled away from the fascia covering the pectoralis muscle,

Convalescence was rapid and uneventful, excepting for the fact that the patient ran a subnormal temperature and pulse for several days following the operation, doubtless due to a change in the blood pressure.

The following is the pathological report of the case:

Macroscopical. — The specimen consisted of a semi-solid tumor partially covered by the skin of the breast. The largest circumference was 26 in., the weight 16½ lb. The contour was in general spheroidal, with some irregular nodulation. Section of the tumor mass showed it to be made up entirely of discrete semi-solid fibrous nodules, the nodules averaging from 2 to 3 in. in diameter. The entire tumor was invested with a colorless, albuminous-feeling fluid which could be squeezed out of every portion of it. Small specimens cut from the tumor mass when placed in water floated out like jelly. Careful search for cystic formations revealed only one thin-walled cyst about 1 in. in diameter.



Periductal myxoma. Sketch showing the proportions and general appearance of the tumor.

Microscopical. — Many sections were taken from various parts of the tumor. They showed numerous variations of a distinctly fibromatous process. In some places there was a pure fibrous structure, with only here and there a cell. The greater number of the sections, however, showed a very cellular fibromatous growth, in which there was a marked separation of the fibers by edema, so as to give it the appearance of a myxoma. This type of cell was so prevalent as to give the tumor the general character of a myxoma, and to cause me to call it by that name. Numerous areas, however, were found scattered throughout the myxomatous portions where the cells showed an extreme degree of proliferation, with the appearance of giant fibroblasts and mitotic figures, in every way resembling the process which takes place in the so-called sarcomatous degeneration of uterine myomata and pelvic fibromata. Some of the sections showed spaces completely filled with the bluish staining mucoid fluid, which was so apparent on cross section of the gross tumor. One portion of the tumor which showed a distinct reddish discoloration macroscopically, revealed under the microscope a well-marked telangiectatic appearance, the blood being contained in thin-walled sinuses, while the lymph spaces were greatly hypertrophied and showed an hyperplasia of the lining endothelial cells. A large number of sections were made with the special purpose of discovering if possible any epithelial elements. The search, however, was fruitless, all glandular structures having evidently been completely obliterated by the rapid and extensive proliferation of the periductal fibrous tissue.

DISCUSSION OF THE CASE.

Thanks to the excellent classification of benign tumors of the breast which Dr. J. Collins Warren has recently contributed to the profession,[6] it is an easy matter to trace the histogenesis and life history of this interesting tumor. The growth undoubtedly started as a fibro-epithelial nodule in which the fibrous type was predominant, and would have been classified at that stage as a periductal fibroma. As the tumor gradually increased, the periductal fibrous tissue eventually encroached upon and completely obliterated the epithelial gland structure. The steady uninterrupted increase in size and weight in time obstructed to a certain extent the circulation of the tumor, with a resulting general edema, which separated the individual fibromatous cells in such a manner as to give them a myxomatous appearance. A searching study of these cells leads me to corroborate the statement made by Dr. Warren that most of the periductal myxomata are in reality edematous fibromata. Only in rare instances did the individual cells under high power have the characteristic spider-web arrangement of the true embryonic myxomatous cell, and it was only under the low power of the microscope that the process appeared truly myxomatous. This is entirely analogous to the edematous change in fibro-myomata of the uterus, which is so frequently described as myxomatous degeneration. I have, however, adhered to the term myxoma in order to conform closely to the recent classification.

The last and most interesting stage in the life history of this tumor is its sarcomatous metaplasia. To quote from Dr. Warren, "The periductal sarcoma arises . . . as a very cellular fibroma. It is for all practical purposes non-malignant, and is distinct from the non-indigenous sarcomata of the breast." Scattered throughout the tumor and seen in practically every section which was cut for examination were areas of extremely rich cell proliferation, in which the cells showed great variation in size, contour and staining properties, many of them reaching gigantic proportions, and could only be classified as sarcomatous.

It is to this metaplastic change that I ascribe the final enormous and startlingly rapid growth of the tumor which took place in the last two or

[6] Boston Medical and Surgical Journal Vol. clv. No. 20. Nov. 15, 1906.

three months. This is a conclusion which I make by analogy from the study of a number of cases of uterine myomata undergoing sarcomatous change and of pelvic retroperitoneal fibro-sarcomata. In these cases to which I refer tumors which had previously not been noticed by the patient took on an extraordinary growth in a few weeks, until they reached such dimensions as to endanger the life of the patient merely by obstructive pressure. In these cases the microscopical appearance showed the same irregular and scattered sarcomatous proliferation of the fibrous or myomatous cells that has been described in this case. In one of the cases, namely, a post-rectal fibro-sarcoma, there was an eventual fatal recurrence, and cases are on record of a recurrence of sarcomatous myomata. If such recurrences take place in the pelvis, it is not unreasonable to assume the possibility of a recurrence in a peri-ductal sarcoma of the breast, which has reached the proportion of the case under discussion, inasmuch as the metaplastic process is undoubtedly identical in character with that seen in the pelvic tumors.

The size of this tumor is undoubtedly very exceptional. The literature on neoplasms of this particular type is meager, and though occasional mention is made that they may attain enormous size, few individual cases have apparently been reported. Many of the textbooks mention the famous case reported by Dr. C. B. Porter, of a diffuse hypertrophy of both breasts, one of the breasts reaching a size considerably larger than the one described in my case. This case of Dr. Porter's, reported both as diffuse hypertrophy and as diffuse intracanalicular fibroma, probably represents a process similar to the growth here described.

In summing up it may be said that the tumor under consideration contained all three forms of the fibrous type of fibro-epithelial growths, namely, periductal fibroma, periductal myxoma, and periductal sarcoma, each process representing a different stage in the development of the tumor.

Clinical Department.

A CASE OF PLEURISY WITH EFFUSION, TREATED BY INTRAPLEURAL INJECTION OF FORMALIN.

BY LAURENCE D. CHAPIN, M.D., SPRINGFIELD, MASS.

Charles D., twenty-nine years old, married, came under the observation of my father, Dr. Frederick W. Chapin, on Oct. 5, 1906. There was nothing of importance in the family history or the habits. Never robust, he had for the past five years suffered much with "asthma." The present illness was of about five weeks' duration. He complained of almost constant shortness of breath, and of severe coughing spells, accompanied by marked expiratory dyspnea. On physical examination there was evidence of a diffuse bronchitis and the left pleural cavity was full of fluid. Three days later my father aspirated and obtained about three quarts of turbid straw-colored fluid. The patient's general condition was much improved and the dyspnea much relieved for several days, but the fluid reaccumulated rapidly and one week after the first tapping three quarts more were removed. The pain and dyspnea were only slightly relieved after this aspiration and the fluid again accumulated.

Nine days later, on Oct. 24, 1906, a third paracentesis was done and three quarts of orange yellow, turbid fluid, slightly alkaline in reaction, of specific gravity 1,018, containing a large amount of albumin and a faint trace of sugar, were obtained. The fluid became gelatinous very promptly on exposure to the air. The sediment contained many red blood corpuscles (this blood came from the skin wound); a differential count of the the leucocytes gave:

Polymorphonuclear neutrophiles,	40%
Lymphocytes,	54%
Endothelial cells,	6%

Two guinea pigs were inoculated with the fluid by Dr. H. P. Loomis, of New York, and no tubercular lesions were found when the animals were killed two weeks later. No tubercle bacilli could be found in this fluid nor in the sputum. The urine at this time contained a very slight trace of albumin, but nothing else abnormal. The tuberculin test was not tried.

While these investigations were being made, the patient's condition was very unsatisfactory. The periods of coughing were frequent and exhausting, the appetite failed and he seemed to be losing ground daily. Morphine gr. ¼ (subcutaneously) was required every evening to keep him comfortable. There was a continuous irregular pyrexia, ranging from 99° to 102°, the evening temperature being generally higher than the morning. The fluid reaccumulated rapidly and another three quarts were removed one week later, on Oct. 31, 1906. A fifth tapping was necessary on Nov. 8.

On Nov. 10 my father met at dinner Dr. John B. Murphy, of Chicago, who suggested for this obstinate case the intrapleural injection of a 2% formalin solution in glycerine. This was tried four days later when, with the assistance of Dr. W. H. Pomeroy and myself, the chest was tapped for the sixth time. As soon as the fluid had ceased to run out, we injected from a sterile metal syringe through the aspirating needle one ounce of glycerin containing ten drops of formalin. At first the fluid reaccumulated as rapidly as after previous tappings, but after a few days its height remained stationary and then began gradually to decline. On Nov. 25, the dose of morphine was reduced to gr. ¼ and a few days later to gr. ⅓; on Dec. 7, the drug was dispensed with altogether. The general condition and appearance improved rapidly, the temperature fell to normal, and on Dec. 12, just four weeks after the injection, the fluid had disappeared entirely from the chest.

A few days later the patient left for Lakewood, N. J. A letter dated Dec. 27, 1906, stated that he still had bronchitis but was gaining in strength daily. On Jan. 11, 1907, he wrote that he had gained eleven pounds in weight.

A Memorial Hospital to be Built at Atlanta.—It is reported that the officers and employees of the Southern Railway will build in Atlanta a hospital costing $200,000, for the treatment of railroad men and their families, as a memorial to the late Samuel Spencer, president of the road. The money has nearly all been raised by subscription, and it is reported that J. P. Morgan, of New York, has donated $10,000.—*New York Med. Jour.*

Medical Progress.

PROGRESS IN GASTRO-INTESTINAL DISEASES. GASTRO-ENTEROSTOMY.

BY ELLIOTT P. JOSLIN, M.D., AND HARRY W. GOODALL, M.D., BOSTON.

GASTRIC CHEMISTRY AND MOTILITY AFTER GASTRO-ENTEROSTOMY. INFLUENCE OF THE OPERATION UPON THE HEALING OF GASTRIC ULCER. JEJUNAL ULCER. INFLUENCE OF GASTRO-ENTEROSTOMY UPON GASTRIC CANCER. LONGEST INTERVAL OF HEALTH AFTER GASTRO-ENTEROSTOMY? SECONDARY OPERATIONS DUE TO THE GASTRO-ENTEROSTOMY OR TO THE RECURRENCE OF THE ORIGINAL DISEASE. SUBSEQUENT HEMORRHAGES NOT NECESSARILY DUE TO GASTRIC ULCER. DIARRHEA. STATISTICS.

OPERATIONS for ulcer and cancer of the stomach have added much to our knowledge of the processes of digestion; they have frequently produced relief or cure for entirely different reasons from those on which they were planned; unfortunately they have also led to the production of at least one new disease, jejunal ulcer. Katzenstein [1] has recently studied the alterations in the chemistry of the stomach after gastro-enterostomy, and the influence which this operation exerts upon gastric ulcer and cancer. His paper summarizes much of the literature on the subject and is most suggestive.

The original purpose of the operation of gastro-enterostomy was to allow the food to pass more easily into the intestine, and it was natural that the changes in digestion which were found later to take place were explained on this basis. The study of patients both before and after they have successfully passed through this operation shows that the changes produced are by no means so simple. The chemical as well as the motor functions of the stomach are affected, and the relief or non-relief which is experienced comes quite as much from the former as from the latter.

The first method, namely, the study of metabolism, has shown conflicting results. Heinsheimer found that the digestion of albumin took place within normal limits, but that there was an increase of fat in the stools. Joslin, and later Rosenberg, met with essential changes in the absorption of nitrogen, but the lack of digestion of fat was still more marked. Thus, in the case of one patient who had undergone a partial resection of the stomach for cancer, it was noted that the loss of nitrogen in the stools was 12.7% and 9.7% respectively at two observations in contrast to a normal loss of 6%. On the other hand, the loss of fat was 18.7%, which would be about four times the normal quantity; and in still another patient, after gastro-enterostomy, this loss of fat in the stools reached the large proportion of 31.2%.

Just as the studies in metabolism have shown varying results, so has been the case with the examination of the gastric contents. Some investigators have observed no essential departure from the normal, others have found bile in the stomach and still others have noted its absence. In general, the hyperacidity has been believed to be overcome by a removal of the stagnation of the contents, but two writers have found the acidity normal when it was normal or diminished before operation. One author among 31 cases found the acidity increased in 5 instances, in 10 it was normal and in 16 it was diminished. These conflicting results are, perhaps, due to poor and insufficient methods of examination. Katzenstein has approached the question from another and more comprehensive point of view. He has studied the results of gastro-enterostomy in 7 dogs; in 5 the anterior operation was performed and in 2 the posterior. In 2 of the 5 operations a button was used. The variety of operation had no influence upon the result. His results are of much value because they explain how patients with gastro-enterostomy can digest food so well.

An essential change in motility after gastro-enterostomy did not take place in any of Katzenstein's dogs. Naturally this does not apply to those cases with complete obstruction of the pylorus. Münz found the motility after operation remained normal. Instead of being hastened by the operation, Jaworsky and Rydygier found it even slowed. These observations certainly upset our preconceived ideas as to the manner in which gastro-enterostomy favors a cure of gastric-ulcer, and show that other factors than motility become effective as a result of the operation. It is, therefore, logical to conclude that not alone those ulcers of the stomach which interfere with its motor function will be benefited by such an operation.

Katzenstein found bile and pancreatic juice in the stomach in abundant quantity in all of his dogs. Immediately after the operation the presence of these secretions is constant. Gradually this condition changes, and at the end of six months, an hour and a half may elapse before these appear. The conditions which control the flow of these juices are most interesting and represent a distinct advance in our knowledge of digestion. They explain why some writers have found bile present and others the reverse. It was discovered that the introduction of fat into the stomach of a dog after gastro-enterostomy was followed by a flow of bile and pancreatic juice within half an hour, but that after a meal of meat the interval was greater — one hour and a half. Water acts similarly. These results were confirmed by experiments upon a man four months after gastro-enterostomy for cancer of the stomach. This reflex stimulation of secretions by way of the stomach itself was not supposed to exist by Pawlow. It is of great importance, because it has been shown that although acids in the duodenum stimulate the secretion of bile and pancreatic juice, they are of no effect when introduced into the jejunum. Kelling's statement was erroneous that the difference between the normal course of digestion and digestion following gastro-enterostomy lay in the fact that the reflex for the flow of bile and pancreatic juice was lost.

The unusual presence of intestinal juices in the stomach has been supposed to be harmful, but before accepting this conclusion it is well to consider how these secretions affect the pepsin hydrochloric acid digestion, and are in turn influenced by it.

Pepsin becomes inert if exposed even for a short time to an alkaline medium. It is therefore evident from what has already been stated that pepsin hydrochloric acid digestion ceases or is diminished at once after gastro-enterostomy, since the alkaline intestinal juices are then constantly present in the stomach. After some months it is possible that gastric digestion may again become active, but only to a modified degree. The alkaline reaction of the intestinal juices directly lowers the acidity. It is also lowered reflexly. The presence of even a small quantity of bile and pancreatic juice in one portion of the stomach inhibits gastric secretion from the remainder of the organ. On the other hand, it is possible to increase the pepsin hydrochloric acid secretion even to normal limits by feeding appetizing foods to a hungry animal or by the feeding of meat. These facts explain the diversity of results which have been obtained through chemical observation.

The ferments of the pancreatic gland, on the other hand, are far more resistant to changes in reaction than pepsin. Trypsin is not destroyed by remaining in an acid fluid for twenty-four hours, though its action becomes weaker the longer the exposure. Tryptic digestion takes place only in neutral and alkaline solutions. The other pancreatic ferments, amylopsin and steapsin, not only resist the effects of an acid solution, but are able to act if the acid solution is mild.

These alterations in the chemistry of digestion in the upper part of the alimentary tract must have a profound influence for good or bad upon the course of ulcer and cancer of the stomach. Ulcer of the stomach, according to Katzenstein, is due to three factors: a local disturbance of circulation, the corrosive quality of the hydrochloric acid and the digestive power of pepsin. One of these factors may predominate to such an extent as to render unnecessary much change from the normal on the part of the other two. The chief characteristic of gastric ulcer, however, is its failure to heal in the presence of hydrochloric acid. Yet it would appear that some variation existed in the power of stomachs of various individuals to resist hydrochloric acid, because some heal while others do not. It is this corrosive action of hydrochloric acid which gastro-enterostomy tends to prevent. The operation, therefore, represents far more than it was originally designed to accomplish. It is not done for a betterment in the motility of the stomach alone, but for a lowering of the acidity. The subsequent appearance of bile and pancreatic juice in the stomach is by no means harmful (*Cf.* also Dastre [2] and Moynihan [3]), but it is a direct aid on account of its alkalinity to the healing of the ulcer, and is also a protection to the mucous membrane of the intestine.

Ulcers of the jejunum were practically unknown until the operation of gastro-enterostomy was introduced. Gould [4] has collected twenty-four cases, to which number we are able to add eleven more. They have apparently occurred because the jejunum has been less able to resist the action of hydrochloric acid than the stomach itself. This explanation receives confirmation from the fact that they have been reported two and three years after, and in one case eight years after gastro-enterostomy for ulcer,[5] but never when this operation has been performed for cancer of the stomach. Katzenstein showed experimentally the sensitiveness of the jejunum, and was first to artificially produce a jejunal ulcer. He caused this to appear in two dogs upon whom gastro-enterostomy had been previously performed. The mucous membranes of both stomach and jejunum were similarly injured with a glass rod which had been dipped into hydrochloric acid. The lesion of the stomach subsequently healed, but perforation of the ulcer of the jejunum followed. It is obvious that disturbance of the circulation in the walls of the jejunum must often be considerable and thus another cause for the formation of ulcer becomes operative.

Perforation of jejunal ulcers is common. Gosset [6] reports "a case of pyloric stenosis treated by posterior gastro-enterostomy. Two years later a peptic ulcer of the jejunum perforated into the transverse colon. The jejunum and transverse colon were isolated and ileosigmoidostomy done, followed by complete recovery of the patient, a man of forty-two."

The table on page 508 includes all cases of peptic ulcer of the jejunum which we have found reported. Undoubtedly, many others have occurred.

The following data collected from this table are of interest:

Sex.		
Male,		27
Female,		4
Undetermined,		4
Age.		
4 months,		1
20–30 years,		7
30–40 years,		8
40–50 years,		6
50+ years,		3
Undetermined,		10
Operation.		
Anterior gastro-enterostomy,		20
Posterior gastro-enterostomy,		9
Y of Roux,		3
Undetermined,		3
Time after Operation.		
Under 1 year,		9
1–2 years,		8
2–3 years,		4
3–4 years,		4
4–5 years,		4
5+ years,		2
Undetermined,		4
Gastric Acidity.		
Normal,		3
Increased,		23
Diminished,		2
Undetermined,		7
Operated upon,	24 { cures, 22 / deaths, 2	
Unoperated upon,	10 { cures, 2 / deaths, 8	
Undetermined,		1

No.	Year.		Sex.	Age.	Operation.	Indication for Operation.	Time after Operation.	Gastric Acidity.	Condition Found.			Result.
1	1899	Braun [1]	M	25	Post.	Dilated stomach.	1 yr.	N	Perforation.	Peritonitis.		Death.
2	,,	Hahn [2]	M	?	Ant.	Pyloric stenosis.	1 yr.	+	,,	,,		,,
3	,,	Mickulicz [12]	M	32	,,	,, ,,	16 mo.	+	Ulcer.		Operation.	Cure.
4	1900	Körte [4]	M	30	,,	Gastric ulcer.	3 yr.	+	Perforation.	Peritonitis.		Death.
5	,,	Steinthal [5]	M	44	Murphy Button, Post.	Pyloric stenosis.	10 days	+	,,	,,		,,
6	1901	Mickulicz [12]	M	25	Ant.	,, ,,	18 mo.	+	Ulceration.	Adhesions.	Operation.	Cure.
7	1902	Hahn [3]	?	?	,,	,, ,,	?	+	,,	,,	,,	,,
8	,,	Hahn [3]	M	?	,,	,, ,,	?	+	,,	,,	,,	,,
9	,,	Neuman [6]	M	24	,,	Functional pyloric stenosis.	13 mo.	+	Perforation.	Abscesses.	,,	,,
10	,,	Kocher [7]	M	?	Y of Roux	Gastric ulcer	1 yr.	—	,,	,,	,,	,,
11	,,	Heidenhain [8]	M	Adult	Ant.	Gastric ulcer. Pyloric stenosis.	4 mo.	N	,,	Adhesions.	,,	,,
12	,,	Goepel [9]	M	?	,,	Pyloric stenosis.	13 mo.	+	,,	,,		Death.
13	,,	Goepel [9]	M	?	,,	,, ,,	4 mo.	+	,,		,,	Cure.
14	,,	Goepel [13]	M	34	,,	,, ,,	9 mo.	+	,,	Peritonitis.	,,	,,
15	,,	Quenu [15]	M	29	Y of Roux.	,, ,,	4 yr.	+	Ulceration.		,,	,,
16	,,	Mickulicz [12]	F	2 mo.	Ant.	Congenital pyloric stenosis.	3 mo.	+	Perforation.		,,	,,
17	,,	Kronlein [10]	?	?	?	Duodenal ulcer.	4 yr.	?	Ulceration.	Adhesions.	,,	,,
18	,,	Czerny [14]	M	59	Post.	Pyloric stenosis.	9 yr.	+	Ulceration.			Death.
19	,,	Czerny [14]	M	42	Murphy Button, Post.	,, ,,	6 mo.	N	,,			,,
20	,,	Czerny [14]	M	36	,,	Gastric ulcer.	2 yr.	+	Ulcer.	Gastro-colic fistula.	Operation.	,,
21	1903	Mickulicz [15]	M	53	Ant.	Pyloric stenosis.	4 yr. 4 mo.	+	Ulceration.	Adhesion.	,,	,,
22	,,	Mickulicz [12]	M	33	,,	Gastric ulcer.	3 yr. 2 mo.	+	,,	,,	,,	Cure.
23	,,	Brodnitz [11]	M	58	,,	Pyloric stenosis. Dilatation.	3 yr. 9 mo.	+	,,		,,	,,
24	,,	Schloffer [16]	F	33	?	Pyloric ulcer.	?	?	,,		,,	,,
25	1904	Robson [17]	M	44	Y of Roux.	Gastric ulcer. Hematemesis.	3 yr. 4 mo.	+	Perforation.		,,	,,
26	,,	Tiegel [12]	M	41	Ant.	Pyloric stenosis. Dilatation.	2 yr.	+	Ulcer diagnosed.	Medical treatment.		,,
27	1905	Kaufman [18]	M	44	Post.	Pyloric stenosis.	4 yr.	+	Gastro-colic fistula.			Death.
28	,,	Von Cackovic [19]	?	?	Ant.	Tumor of pylorus.	3 mo.	?	Ulceration.		Operation.	Cure.
29	,,	Jahr [20]	M	29	,,	Pyloric stenosis.	1 yr. 10 mo.	—	Ulcerations.	Adhesions.	,,	,,
30	,,	Eiselsberg [21]										
31	,,	Herczel [22]	M	37	Post.	Gastric ulcer.	8 yr.	?	Ulcer.	Gastro-colic fistula.	Operation.	Cure.
32	1906	Gosset [23]	F	42	,,	Pyloric stenosis. Dilatation.	22 mo.	+	Ulcer.		,,	,,
33	,,	Battle [24]	M	30	Murphy button, Ant.	Pyloric obstruction.	7 mo.	?	Perforation.	Adhesions.	,,	,,
34	,,	Battle [24]	F	37	Ant.	Ulcer with obstruction.	1 yr.	?	,,	,,	,,	,,
35	,,	Lyle [21]	M	26	Post.	Gastric ulcer.	6 mo.	+	Ulcer diagnosed.	Medical treatment.		,,

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[2] *Idem*, p. 74.
[3] *Idem*, 1902, p. 114.
[4] *Idem*, 1900, p. 137.
[5] *Idem*, 1900, p. 139.
[6] *Idem*, 1900, p. 139.
[7] *Idem*, 1902, p. 103.
[8] *Idem*, 1902, p. 103.
[9] *Idem*, 1902, p. 108.
[10] *Idem*, 1902, p. 110.
[11] *Idem*, 1903, p. 77.
[12] Mitt. a. d. Gyn. d. Med. und Chir., 1904, xiii, p. 909.
[13] Bull. et Mém. de la Soc. de Chir., Paris, 1902, p. 250.
[14] Beiträg. für klin. Chir., 1902, xxxiv, p. 98.
[15] Boston Med. and Surg. Jour., 1903, p. 608.
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[17] Ann. of Surg., 1904, p. 190.
[18] Mitt. a. d. Grenz. d. Med. und Chir., 1905–6, xv, p. 151.
[19] Wien. klin. Wochenschr., 1905, p. 379.
[20] Berlin klin. Wochenschr., 1905, xviii, p. 379.
[21] N. Y. Med. Jour., 1906, lxxxiv, p. 1230.
[22] Cong. Internat. Surg. Soc., 1905.
[23] La Presse Médicale, 1906, no. 66, p. 525.
[24] Lancet, London, 1906, i, p. 274.

The diet for ulcer of the stomach should, therefore, be arranged so as to prevent the secretion of hydrochloric acid and pepsin. Little albumen should be given, but the quantity of fat and carbohydrate must be large. The stomach should not be allowed to be free from food, if only thus the presence of hydrochloric acid can be avoided. Meals should be given every two hours and water drunk freely. Katzenstein has observed that the giving of much fat soon after operation prevents discomfort arising from bile, and therefore advises milk and cream at the end of one day. Bile alone in the stomach may cause symptoms, but the emulsion produced by bile and fat does not.

Gastro-enterostomy in cancer of the stomach was originally performed only to prevent starvation. But the good effects of the operation can by no means be wholly explained by the betterment of the gastric motility. Many surgeons have seen cases free from obstruction, which were benefited for years by the operation. Various explanations have been offered, among them being the freedom from irritation of the growth which the operation affords. With our present knowledge that gastric motility is not greatly, if at all, influenced by gastro-enterostomy, another explanation must be sought. Katzenstein suggests that the source of the improvement may be found in the action of trypsin. There is no reason to doubt the digestive action of trypsin on the necrotic surface of the cancer, and the operation affords a most favorable opportunity for this to take place. Trypsin will digest cancer tissue because the reaction of the tissue is alkaline, though pepsin for this same reason will be without effect. The action of trypsin in cancer of the stomach will certainly be watched with interest, particularly because of the observations now being accumulated concerning its action on cancer in general. The indication for gastro-enterostomy in cancer of the stomach may thus soon become far more general than in gastric ulcer.

The value of gastro-enterostomy in the treatment of diseases of the stomach cannot be determined for many years. It is not enough that immediate results be brilliant; their permanency must be assured. Recurrences of the original disease for which the operation was performed have been reported and serious disturbances of function due to the nature of the operation occur. This operation is performed on young individuals. In what condition will they be after twenty, thirty or forty years? Will the digestive tract permanently accommodate itself to the artificial changes produced? This seems not improbable from experiments on animals. Czerny's dog lived to a ripe old age after complete removal of the stomach. Nevertheless, it would be interesting to have more reports of the results of gastro-enterostomy ten years after operation. What is the longest interval of good health after gastro-enterostomy?

It would be unjust to consider present statistics upon the value of the operation as the best to be attained in the future. The operation is still in an experimental stage, and experience on the part of the operator will certainly count.

Secondary operations are not uncommon, due either to improper functioning of the loops or the new opening. It should be remembered that such operations are on account of the gastro-enterostomy, and not because of the symptoms of gastric ulcer. Obstruction may occur within two weeks [7] and be of such alarming severity as to demand immediate surgical interference. Even a second operation may not suffice to correct the faulty action, and a third operation may be necessary at the end of a year.

These cases are to be distinguished from those of gastro-mesenteric ileus and acute dilatation of the stomach,[8] which at once supervene upon the operation. Such may follow any laparotomy, and do not necessarily imply defective surgical technique. The prognosis of these cases is extremely grave, however, and relief is to be sought by raising the hips, keeping the patient on the right side, frequent lavage of the stomach, and possibly the use of large enemata to alter the relations of the various portions of the alimentary tract to one another. Strychnine and atropine may be given in large doses.

Hemorrhage, pain and vomiting — symptoms of a recurrence of the ulcer — may appear, although a second operation discloses no serious impairment in function of the original gastro-enterostomy.[9] The operation thus at times fails to cure the ulcer, and a second operation is of as little advantage as the first. Paterson [10] reports a second operation for recurrence of the ulcer two years after the first operation, and with a fatal result. He has found no case in which relapse occurred after the patient had remained well for a period of eighteen months after operation. Writing subsequently, Robson [11] mentions recurrence of ulceration with death from hematemesis after four years of good health following gastroplasty for ulcer. On the other hand, a second perforation [12] is not an argument against the usefulness of gastro-enterostomy because Mayo [13] found multiple ulcers in 20% of his cases. Cuff [14] records the history of a patient who was operated upon twice for the perforation of two totally distinct ulcers of the stomach. Repeated attacks of gastric pain and vomiting occurred during the interim of four years.

Sudden hemorrhages may occur many months after apparently successful gastro-enterostomies, and Munro [15] records two such after an interval of nine and fifteen months from the time of operation. In one instance the result was fatal. Other similar instances are cited by Rodman,[16] whose experience corresponds with Mayo, Deaver, Kocher and other surgeons. But such hemorrhages are not necessarily due to a recurrence of the ulcer. Data is steadily accumulating which go to show that profuse hemorrhage in the upper alimentary tract frequently occurs, and yet no source of the blood can be found. W. Hale White has recently discussed this question,[17] and Busse, in an exhaustive article,[18] called attention to post-operative gastric and intestinal hemorrhages following laparotomies of every description, and even after any operation upon the body.

Diarrhea may follow gastro-enterostomy. It is especially frequent when the operation is performed for cancer of the pylorus. Anschütz [19] says this is almost invariable in malignant stenosis of the pylorus, if a loop is taken for anastomosis at a distance of more than forty to fifty centimeters from the plica duodeno-jejunalis. Diarrhea may begin as late as ten days after the operation, and may resemble a severe dysentery or diphtheria of the intestines. It is remarkable that this symptom does not develop until the patients are well on the road to recovery. Treatment must be prompt and energetic. "Since this rule has been adopted in Anschütz's clinic, no threatening diarrheas have developed. When there is an excess of hydrochloric acid he neutralizes it with an alkali; when it is deficient he supplies the normal amount. He also strives to empty the intestines of harmful contents by powerful purgatives, — castor oil, calomel or Carlsbad salts, — with astringents and possibly subcutaneous nutrient injections of sugar, fat and salt. The first indication of diarrhea is met by giving 1 gm. (15 grains) bismuth, with an astringent and 10 drops of opium, repeating this dose every one or two hours. If this is not successful, he increases the dose of opium, giving as much as from 80 to 100 drops of the tincture of opium. Some individuals require more than others to put the intestine at rest. If the diarrhea is checked a little the opium can be dropped and the astringent continued; but at every new fluid passage the attendants are instructed to give from 10 to 20 drops of opium. If there is a possibility that a loop of intestine too low down has been used by mistake, a secondary laparotomy should be done and conditions righted, or a wide entero-anastomosis made to enable the contents of the intestines to be mixed with the digestive juices more thoroughly. An artificial anus may prove of service if made in time. It is important also to learn the previous history of these patients before operating on the stomach. If a tendency to diarrhea exists, the patient should be supervised with exceptional care."

Pneumonia should be considered as one of the complications which may especially follow a gastro-enterostomy, but hernia of the abdominal wound is not unusually frequent. Jejunal ulcer has already been mentioned.

Statistics upon the results of gastro-enterostomy are most peculiar. Thus one writer reports 110 cures or apparent cures out of 112 cases operated upon, in contrast with another writer who found recurrence of symptoms in 40 cases out of 72 operated upon. Those interested will find summaries of recent work on gastric ulcer by Robson [20] Hewes,[21] Paterson,[22] Rodman,[23] Bruning [24] and Robson.[25]

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[23] Rodman: Jour. Am. Med. Asso., Sept. 15, 1906, p. 842.
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Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

REGULAR MEETING, MONDAY, JAN. 21, 1907.

PRESIDENT, DR. HENRY JACKSON, in the chair.
DANIEL FISKE JONES, M.D., Secretary.

DR. HERMAN F. VICKERY read a paper on

EMPYEMA FROM THE PHYSICIAN'S STANDPOINT.[1]

DR. F. B. LUND read a paper on

SOME SURGICAL ASPECTS OF EMPYEMA.[2]

DR. F. T. LORD: I have been much interested in the two papers of the evening. Concerning the frequency of pleural effusion in pneumonia, the autopsy records of the Massachusetts General Hospital afford some interesting data. Of 154 cases of lobar pneumonia which have come to autopsy, pleural fluid was found in varying and usually small amounts in 57 cases. This fluid was serous in 13, sero-fibrinous in 42, purulent in only 2 cases. The large proportion of fatal cases of lobar pneumonia which show inflammatory pleural fluid at autopsy suggests that spontaneous recovery from such effusions is frequent in similar cases with a favorable termination. Clinical experience also confirms this, for exploration with the needle for suspected effusion complicating pneumonia at times results in the aspiration of a small amount of sero-fibrinous fluid with considerable cellular sediment collected by the centrifuge. This sediment may show an excess of polynuclear leucocytes on microscopical examination, pneumococci may be demonstrated by culture and yet recovery may follow without resort to operation. The purulent effusions should always be opened and drained, and we should strive to detect them at the very earliest part of their course.

The physical signs of empyema have already been so well described by Dr. Vickery that only one or two points occur to me to mention. Brief reference to a procedure which has been of service to me may not be without interest. I refer to the careful determination of the cardiac limits. An accurate record of the cardiac boundaries when a patient with pneumonia first comes under observation may prove of unexpected value, when later in the course of the disease a complicating empyema is suspected. A slight deviation from the originally recorded position of the heart may be a deciding factor in the diagnosis of an effusion otherwise doubtful because of existing pulmonary changes.

[1] See page 501.
[2] See page 497.

A second sign which may be of importance in differentiating pneumonia with a thickened pleura from a pleural effusion is Grocco's sign of relative dullness in a triangular area along the spinal column on the side opposite the suspected effusion. This sign is absent in pneumonia, but was present in 30 of 32 cases with pleural effusion, recently published by Thayer and Fabyan.[3]

The use of the exploring needle is rightly, I believe, regarded as a most valuable and usually harmless procedure in the diagnosis of empyema. There are, however, one or two limitations and possible dangers in its use, which I should like to consider for a moment. The aspiration of a considerable quantity of clear pus in uncomplicated cases is practically conclusive evidence of empyema. A small amount of pus, however, may be withdrawn from a dilated bronchus or a focus of pulmonary abscess if the case is thus complicated. It should be remembered, too, that when foci of pulmonary suppuration are present they are usually near the pleural surface. On the other hand, a negative exploration with the needle should never be regarded as an assurance of the absence of empyema, as Dr. Vickery has already emphasized. In cases in which tapping has been negative and in which from the clinical symptoms and signs pus is still suspected, it is, I believe with Dr. Vickery, the duty of the physician to advise exploration with the knife.

In regard to the dangers of thoracentesis, I may refer to two accidents of which I have known. The first was in a case of suspected empyema. Exploration was done in the left lower thoracic region. Pus was found and later evacuated. Recovery was interrupted by the development of subdiaphragmatic abscess, and post-mortem examination showed that the exploring needle had probably perforated the diaphragm. Such an accident is more likely to occur in chronic cases with firm pleural adhesions. The second instance was in a patient who had suffered from pneumonia for three and one-half weeks and in whom a cavity in the left superior lobe and a left-sided empyema was suspected. Exploration with the needle in the third left intercostal space was followed by hemorrhage from the mouth and oozing from the wound of puncture and proved fatal in twenty-four hours. In patients the subject of chronic pulmonary suppuration, so frequently associated with chronic interstitial pneumonia and single or multiple abscesses, exploration with the needle is attended with considerable danger. In the case just mentioned autopsy showed an abscess cavity of the left superior lobe, surrounded by vascular granulation tissue, the puncture of which had caused the fatal hemorrhage. Blood vessels of considerable size may line the walls or traverse the lumen of abscess cavities, and their injury with the needle may lead to alarming or even fatal hemorrhage.

In acute cases suspected of uncomplicated empyema, an exploration with the needle is practically without danger, if done with due precaution. In general, I would not be understood as speaking in condemnation of the procedure, but in patients with chronic pulmonary disease, in whom we may suspect interstitial pneumonia, with foci of abscess or gangrene, the operation is not without danger.

Dr. E. A. Codman: I should like to congratulate Dr. Vickery on the excellence of the results in his cases As I understand it, in twenty-one cases there was no mortality.

One of the cases which he alludes to as not doing well was a case which I myself operated on for him. As he has said, this case was a neglected one in which the pus had been present for a long time before it was evacuated, and when the pus was withdrawn there seemed to be no tendency for the lung to fill the cavity. I have twice since operated on this patient by removing portions of his ribs so as to allow the chest wall to sink in towards the lung. I have been unable entirely to obliterate his chest cavity, but have succeeded well enough to reduce the suppurating surfaces to a comparatively small area so that the poor old man, although not healed, has lived for six years. I am afraid he has cost the hospital a good deal for dressings in that time.

In this case and in another similar case, which is also living, I did an operation for resection of the ribs which I have not seen described. This operation consists in removing portions of most of the ribs at their angles through an extra-pleural incision at some distance from the wound of the original operation. By careful asepsis in both of these cases I succeeded in getting primary union after the resection of nine ribs through one long incision. The result has been gratifying in that it immediately reduced greatly the extent of the suppurating internal surface of the cavity. If I should do this operation again, I should do it both in front and behind so as to allow the chest wall still further to sink in. This case also illustrates another point mentioned by Dr. Lund, the danger of losing drainage tubes in the pleural cavity. At the second operation on this case I was told by the out-patient dresser that a tube had been lost. An x-ray taken to determine the whereabouts of the tube to my surprise showed three tubes instead of one! At the operation I was able to recover all three.

I also want to speak of a case which I operated on recently for Prof. Frederick Shattuck at the Massachusetts General Hospital. The empyema in this case appeared in the convalescence from typhoid. Dr. Shattuck had made the diagnosis and withdrawn pus with a needle. Thinking that there must be pus below the point where he had tapped and wishing to make the drainage at as low a point as possible, I resected a portion of the tenth rib in the posterior axillary line. The patient was very sick, so I used cocaine. On removing the rib I tore into an apparently healthy serous cavity which was separated from the rib practically by only the thickness of the periosteum, showing that I could not have gone through the diaphragm into the abdomen. I did not feel sure at the time whether I had entered the abdomen or a portion of the pleural cavity below an encysted empyema. On thinking it over afterward I felt sure that I must have been in the pleural cavity, but as the patient was under cocaine at the time I did not feel like exploring, knowing that the thing to do was to close the wound and later search for the pus at the point at which Dr. Shattuck had tapped. Two days later Dr. Harrington under ether resected the rib at the latter point and had no difficulty in evacuating a considerable amount of pus. The patient recovered unusually rapidly. This case interested me very much because I had previously thought that encysted empyemata must be very rare and that if pus was obtained at a certain level it must extend at least from there downwards to near the limits of the pleural cavity. In one case I remember that the bottom of the cavity was at the twelfth rib.

I was interested to hear that Dr. Lund had also given up a lower opening for another reason, because he found that the diaphragmatic pleura closed the wound too soon. Certainly most surgeons would prefer to have their drainage at the most dependent part of the cavity. Some even resect one rib and, having passed their finger into the pleural cavity, feel down for the lower limit and then resect another rib. The only objection I can see to this procedure is that two wounds would be more troublesome to close than one in order

[3] Am. Jour. Med. Sc., Jan., 1907.

to obtain the bellows action which helps the lung to expand.

Another point which Dr. Lund has mentioned I should like to ask him about. He spoke about feeling the lung come down on his finger in certain cases. I have never myself seen the lung fill up the cavity when the pus is drained, although I have seen the parietal pleura on the diaphragm come very close to the opening. When I have seen the collapsed lung at all, it has collapsed towards the median line, not towards the apex of the pleural cavity. I think it would be more correct to speak of the lung coming out than coming down. I should like to ask whether any of the other gentlemen have had the same experience.

I was also interested to hear Dr. Lund say that he had had no satisfaction with the various appliances for producing a valve-like action of the dressing. I believe that such a dressing was originally invented by Lister, but at the Massachusetts General Hospital a dressing of rubber tissue applied so as to act like a valve was introduced by Dr. Arthur T. Cabot. Until Dr. Cabot showed me how to apply it, I got little satisfaction from it, but since I have known how to apply it, I have thought that a good deal of help was obtained from it.

I should also like to ask Dr. Lund what he thinks of a suggestion which I made to Dr. Shattuck in regard to another of his patients. The patient had a very large empyema cavity of some years' standing. There had been no operation, but at intervals of many months the patient had been tapped and large quantities of pus were drawn. In this case it seemed to me that since the disease had existed so long a time that the prognosis of operation would be poor at present, even though the patient's general condition was very good. I suggested that the patient should be tapped for several times at short intervals so as to decrease the size of the cavity and allow the mediastinal tissues to return to their normal places as nearly as might be. If the cavity could be kept small by repeated tappings for a while, it seemed to me that the prognosis of an operation would be better than if the operation were undertaken at once.

NOTE. There is still another point which I have not heard spoken of to-night which is of great interest. I refer to the prognosis in cases of pyopneumothorax. In these cases, if there is a communication between the empyema cavity and a bronchus, it would seem to me that the chances of expansion of the lung are greatly diminished. This condition was present in both the cases to which I alluded above as being benefited by resection of the ribs.

I was told a short time ago by Dr. J. H. Pratt that he had been able to cause the disappearance of a pyopneumothorax by repeated tappings and systematic hygienic treatment in a tubercular case. If so much can be accomplished in this way, I am inclined to think that I should advise a case of pyopneumothorax to be treated in this manner rather than by operation, for it seems to me that the chances of expansion of the lung in such cases are very much reduced.

ADDENDUM. Since the meeting at which Dr. Lund read his paper I have operated on another case of empyema in which I had the misfortune to again resect a rib at too low a level. On this occasion I resected a small portion of the eighth rib in the posterior axillary line and found the diaphragm adherent to the pleura. I then resected a small portion of the sixth rib in the same line. This proved to be at the lower limit of the empyema cavity. In this case, which was a girl of about ten years of age, it was very easy to make out the position of the lung. Its lower border was adherent to the diaphragmatic pleura and it was collapsed toward the mediastinum. The diaphragmatic and parietal pleuræ were adherent as far as the sixth rib.

I think that the reason that I never have seen the lung come out to the wound may be that I have had never the opportunity to operate on a very recent case in a young child before adhesions had formed. Possibly in such a case the lung might expand or rather the flexible chest wall might collapse so as to obliterate the cavity.

DR. PERCY MUSGRAVE: I have been very much interested in hearing both of these excellent papers. There are one or two points which have interested me especially. Dr. Lund spoke of a source of error in diagnosis; namely, where the true pus had gravitated to the lower angle of the pleura and the fluid withdrawn at a higher level was serous.

Examination of the stained sediment in these cases I think would have shown over 90% of polynuclear leucocytes and probably bacteria. There are a considerable number of cases which are on the border line of empyema, where paracentesis is done, and empyema can usually be predicted when stained coverslip preparations of the sediment show a great predominance of polynuclear leucocytes, and this is especially true where bacteria are found as well. This is well illustrated in a case of metapneumonic pleurisy which I saw, where the fluid was serous, the temperature only slightly elevated and the leucocyte count of the blood was falling, the stained sediment showed over 95% of polynuclear leucocytes and occasional pneumococci. On account of the clinical picture it was not deemed advisable to interfere. Several days later, on account of the signs of reaccumulation and slight rise in temperature, the patient was tapped again showing pus, which gave pneumococci in pure culture.

The streptococcus cases are also misleading at times, as the fluid may be only slightly turbid, although the stained sediment shows over 98% of polynuclears and often numerous cocci. This last class of cases is especially liable to subcutaneous abscesses arising from the course of the original paracentesis wound, although often several inches from it. It is always well to think of this when the chest is draining well and signs of reaccumulation are absent, but the temperature has risen and the appearance of the patient is bad.

In reply to Dr. Codman's question, I remember a case where there was encapsulated empyema immediately adjacent to the pericardium, but with no infection of that membrane. The case was proved at operation.

DR. CHARLES P. SYLVESTER: I have occasionally suspected loculated empyema either of chest wall, interlobar, or between the lower lobe and diaphragm, as modifying the termination of some of my pneumonia cases, and since hearing Dr. Musser's excellent paper on that subject at last June's session of the American Medical Association, have sought with more confidence to detect signs leading to such a diagnosis.

Two weeks ago I made the diagnosis on the appearance of hectic fever, sweats, incessant cough and localized edema of chest wall in a patient recovering from pneumonia.

A woman, sixty-five years old, whom I had tapped three times within last two years for right-sided hydrothorax and once for ascites secondary to endocardial and myocardial disease, developed three weeks ago pneumonia of left lower lobe. Temperature remained for seven days between 100.5° and 102.8°, then fell to 96.5°, with clearing up of lungs. Two days later temperature became hectic, reaching 102.5° each night, and accompanied by severe night sweats and incessant cough and edema of right chest wall in axillary space between fourth and eighth ribs.

Three examinations of sputum for tubercle bacilli were negative. Hyperresonance of the right lung dependent upon the pneumonic condition in the left rendered it difficult to detect a small area of impaired resonance, and the breath-sounds, likewise modified,

were negative. Dr. Withington later went over the case carefully with me, but was also unable to confirm the diagnosis from physical examination.

I believe that autopsy, however, would show a localized empyema not far from the seat of the edema.

Dr. John Lovett Morse: The thing which has struck me most forcibly about the papers of the evening is how much better the prognosis of empyema in adults is than it is in infancy and early childhood. In them empyema is a very serious and fatal disease. The prognosis at this age seems to depend more on the time of the operation than on anything else, delay making the prognosis much worse. I have found a marked sense of resistance one of the most important diagnostic signs between solid lung and fluid in infancy. I depend on this and the displacement of organs more than on all other signs together. The exploring needle should be introduced where the signs are most suggestive of fluid without regard to any theoretical considerations as to the point of election. I have seen encapsulated empyema in both infants and young children and have several times seen an interlobular empyema.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, Wednesday, Feb. 6.

The President, Dr. Arthur V. Meigs, in the chair.

INFECTIONS WITHIN THE THORAX-EMPYEMA.

Dr. John H. Musser gave some statistics showing the frequency with which empyema followed pneumonia, and called attention to some points for the early recognition of the condition that recourse might be had to early operative procedure. The diagnosis, he said, must be made in great part from a full understanding of the antecedents of the infection. In a large majority of cases this antecedent condition is pneumonia. The physician should be on his guard for the development of the general phenomena of infection after the pneumonic process has apparently subsided. He called attention to the significance of minor local symptoms during the convalescence of pneumonia and the early period of a beginning empyema. Pain of the steady, persistent type was significant, also the localized tenderness. The physical sign of impaired expansion and the presence of Litten's sign were mentioned as valuable diagnostic points. Little reliance can be placed upon fremitus, as it is variable. The voice sounds were said to be not usually different from those found in the presence of effusion. Localized friction was regarded as a valuable guide regarding the position of the abscess when it is between the lobes and under the diaphragm. Some value was attached to the x-ray in the recognition of abscess within the thorax. He urges exploratory operation by resection of the rib for the speedy detection and immediate cure of these abscesses.

Dr. Frederick P. Henry agreed with Dr. Musser in the importance of early diagnosis and in the points brought out in making that diagnosis positive.

Dr. Judson Deland spoke of the well-known dangers of the dry tap and the mistaken conclusion sometimes taken that no pus is present.

Dr. Arthur V. Meigs spoke of the difficulty in diagnosis, but thought it was usually as well made by the physician as the surgeon.

Dr. R. G. LeConte, for the surgeon, claimed that he was not a wizard and, seeing a patient for a few moments, should not be presumed to be able to localize pus which the attending physician was unable to do after having the patient under observation for several weeks. He cited one case in which he had opened the chest without finding pus. Dr. Packard had withdrawn pus by the needle. Dr. LeConte had then opened the chest at the site of puncture to find that all had been withdrawn. Uninterrupted recovery followed the resection.

Dr. S. Solis Cohen heartily indorsed the advice given by Dr. Musser to open the chest fearlessly even when a dry tap is made. He recalled one case in which three dry taps had been made but in which, upon rupture of dense adhesions, a pus cavity was revealed. In still another case seen in consultation, the needle removed no pus, but resection of the rib showed that pus was present.

Dr. A. A. Eshner said that in the presence of the signs of pleural effusion and in cases of dry tap, with the persistence of the symptoms, resection of the rib is entirely justifiable.

ON THE TREATMENT OF CHRONIC DISEASES OF THE HEART.[1]

Prof. Theodor Schott, of Nauheim, in accordance with an invitation to lecture in the United States, spoke upon this subject. He mentioned that the former method of treatment with rest and digitalis had been inadequate. Even many of the newer remedies were unsatisfactory, which had led to a search for other means and the finding of physical methods. These were said to be principally the Swedish and Oertel's methods, as well as the balneological gymnastic treatment devised by himself conjointly with his late brother, August Schott. He spoke first of the Oertel Cure. Oertel's theory, however, concerning the limitation of the supply of liquids proved to be erroneous. Mountain climbing is only notable in a limited number of cases of heart affections, and should really be resorted to towards the end and not at the beginning of the treatment. The Swedish method was said to be principally used in the form of Zander's mechanical contrivances. These do not, however, render the patient independent either of his momentary physical condition or of continued medical supervision. It should not be overlooked that with Zander's machinery the patient is dependent upon time and locality, and above all that it is a very difficult matter to attain a precise degree of individualization in the measurement of the resistances.

The lecturer then described his balneological-gymnastical treatment, depicting the physiological action of the baths, their influence upon the heart, the vascular system, blood-pressure. The baths and gymnastics were said to be tonics for the weakened heart, the baths working by means of the sensory, the gymnastics by means of the motor, nerve-treatments. He then described the course of the bath-cure in heart diseases. The treatment begins with the use of simple saline baths, especially in severe cases. The strength of the baths is then gradually and systematically increased until finally the strongest mineral water with the highest percentage of natural CO_2 is resorted to. The full details of the Nauheim baths were given, their solid and gaseous (CO_2) constituents, temperature, duration, etc. The lecturer then spoke of the mode of preparation of artificial Nauheim baths as devised by his late brother and by himself. He also pointed out how their usefulness may be imperiled through not properly preparing them.

Gymnastics are used in two forms: Resistance gymnastics and exercise with self-resistance. In the first of these forms the resistance is offered by an assistant; in the second, by the tensifying (contraction) of antagonistic groups of muscles on the part of the patient himself. The manner of performing these exercises was described, and also the cautionary measures which

[1] Dr. Schott's paper will later be published in full in this Journal.

they require. He further mentioned massage, the application of heat and cold, the use of electricity and the diet. In conclusion, a large number of drawings were exhibited showing heart limits, radiograms, pulse-tracings with relative blood-pressure. In this way, he said, might be illustrated the results obtained in cases of heart disease by the balneological-gymnastical treatment.

DR. S. SOLIS COHEN spoke of his experience with the method with which Dr. Schott and his brother had enriched therapeutics. He was glad to note the emphasis placed by Dr. Schott upon individualization. The special difficulty he had found in training operators to administer the Schott system of exercises was to have them properly understand the meaning of the word "gentle" in the employment of the gentle resistance exercises. The question of diet, he agreed, was also of great importance. As with the baths and exercise, there should here be strict individualization.

DR. JAMES M. ANDERS agreed with Dr. Schott that more is gained in chronic cardiac disease from the physical methods than from the use of drugs alone. He spoke of his personal observation of cases under the author's care and of the efficacy of the methods of treatment. The most marked effect had been in the lessening of the size of the heart. He had more than once been able to note after the application of the resistance exercises the decrease of the heart's transverse diameter by half an inch. The principal factors in the increased vigor of the heart were said to be the indirect influence of the saline baths acting upon the cutaneous sensory nerves and the stimulation of the peripheral motor nerves by the resistance exercises.

DR. JUDSON DALAND spoke of a method of estimating the condition of the cardiac muscle in its reaction before applying the resistance movements. It consisted in certain muscular movements of the body and noting the force of the first sound of the heart.

Book Reviews.

Tropical Medicine, with Special Reference to the West Indies, Central America, Hawaii and the Philippines, including a General Consideration of Tropical Hygiene. By THOMAS W. JACKSON, Lecturer on Tropical Medicine, Jefferson Medical College, Philadelphia; Member of the American Society of Tropical Medicine, etc. Philadelphia: P. Blakiston's Son & Co. 1907.

The author's purpose in this volume is to describe the diseases of the American tropics and to limit himself to such diseases as are found within our own territory, *i. e.*, the southern portion of the United States, Cuba, Porto Rico, Hawaii, Guam and the Philippine Islands. There would seem to be a need for such a book.

Two considerations have been kept in view by the writer: utility and simplicity. Complexity in terminology and classification has been avoided, and tropical diseases not occurring in the above-mentioned regions are not included. Suggestions as to general hygiene in the tropics precede the description of the diseases. In this is included a concise consideration of some of the insects, especially mosquitoes. Then follows the description of the various diseases. The book is well printed on good paper and is well written in a somewhat narrative style, especially those parts in which the author details his own experiences. The subject matter is well arranged and is illustrated by cuts culled from various sources, all well chosen to illustrate a definite thing. The book appears to contain much information of great value to the medical man in the tropics. For the physician in temperate climates it is a very readable book and one from which he may gain valuable information, for with the possession of tropical colonies and increasing communication with them, the diseases of the tropics become of actual importance to the medical man at home. That this is no theoretical consideration is shown by the fact that the reviewer in the past few years has seen in the general hospitals of Boston examples of eight of the diseases described in Dr. Jackson's book, notwithstanding that Boston is almost as remote from our tropical possessions as any city in the United States.

Treatise on Orthopedic Surgery. By ROYAL WHITMAN, M.D. Philadelphia and New York: Lea Brothers & Co. 1907.

This volume which is a revised and enlarged edition of the former well-known work by the same author describes all the diseases and deformities known to orthopedic surgery, in a most interesting manner. Each chapter is written in its own way, and there is no attempt at similarity in the method of treatment of the different subjects. In the beginning of the book, tuberculous diseases of the spine are treated, then non-tuberculous diseases of the spine. After this, curvature of the spine and deformities of the chest. Then diseases of the bones and joints, and following are the deformities and injuries of the lower extremity and upper extremity, a very interesting chapter on congenital and acquired deformities leading to general distortions, congenital hip, coxa vara, nervous diseases, torticollis, most interesting and detailed, ending with four chapters on the deformities and disabilities of the foot. In those subjects to which the author has devoted especial personal study, he becomes most interesting, direct, concise and forcible.

Paraffin in Surgery. A Critical and Clinical Study. By WILLIAM H. LUCKETT, B.S., M.D., Attending Surgeon, Harlem Hospital, and FRANK I. HORN, M.D., Assistant Surgeon, Mt. Sinai Hospital Dispensary. New York: Surgery Publishing Company. 1907.

This little book of 118 pages, including a satisfactory index, is a good book. The authors have presented their subject in logical and forceful fashion. Especially interesting to the casual reader is the introductory chapter on the history of the use of paraffin in surgery, — a chapter which clears up many misconceptions and explains cogently the *rationale* of this procedure. The subsequent chapters discuss the chemistry of paraffin, its early disposition in the tissues, its physical states and its ultimate disposition. Then follow chapters on technique, results and accidents. The book is one which every careful surgeon may read with profit.

THE BOSTON

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CENTENARY OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF NEW YORK.

In June of this year the College of Physicians and Surgeons, now affiliated with Columbia University, will celebrate the one hundredth year of its existence. The history of medical institutions in this country is becoming increasingly interesting, and many have attained an age which make a rehearsal of the events which have led up to their present condition a matter of more than passing significance. The last number of the *Columbia University Quarterly* is given up entirely to questions of medical education in New York as exemplified by the development of the College of Physicians and Surgeons. It is particularly significant that the celebration about to take place is to be under the auspices of Columbia University, exemplifying as it does the strongly marked tendency to associate as closely as possible medical departments with university foundations.

The first class was graduated from the College of Physicians and Surgeons in 1811 and consisted of eight men, three of whom were bachelors of arts of Columbia. The original school of medicine in New York in connection with the college had begun teaching in 1767, and again in 1792, after a long cessation resulting from the War of the Revolution. The College of Physicians and Surgeons had been founded in rivalry to this Columbia school, but in 1813 the faculty of medicine of Columbia College ceased to exist, and the College of Physicians and Surgeons became the center of medical education in the city. Later it was affiliated with Columbia University, and in 1891 became an integral part of that institution. The history of struggle, and final survival under the best possible conditions for advance is characteristic of the best medical schools of this country. It now has many rivals in its own city, schools associated with universities, but for many years in its earlier life the small faculty of the College of Physicians and Surgeons stood almost alone, and with the exception of the parent school in Philadelphia, the Harvard School in Boston, and a few others, it drew students from widely separated parts of the country.

The various articles in this volume of the *University Quarterly* from the pens of such men as Drs. L. Emmett Holt, Frederic S. Lee, Walter B. Jones, M. Allen Starr, George S. Huntington, and others, are extremly suggestive, not only of the progress which has been made in the past, but also of the hopes and tendencies of the future. On this occasion a certain self-satisfaction is perhaps not to be criticised, but we question whether the following statement, for example, by Dr. Starr will meet with universal acceptance: "That New York City is at present the most advantageous in which to pursue the study of medicine in the United States needs no argument." We have no intention of quarrelling with this statement, but it should certainly be borne in mind that size, multiplicity of hospitals and of medical schools do not necessarily determine the advantages to be derived from medical study in their midst. It is well to look to the German universities, which afford an admirable example of the advantages to be gained from study in small areas of population provided the system of education is above reproach. Mere size certainly has certain positive disadvantages, and in general we must come to recognize in this country that men rather than extraneous circumstances, in last analysis, determine the character of the medical school. In this latter respect the College of Physicians and Surgeons stands well among the leaders, but it is still open to question whether New York is at present the most advantageous place in this country in which to pursue the study of medicine.

We have, however, no desire at present to discuss this question. It should be a source of congratulation to all who are interested in the higher medical education that the medical department of Columbia University has completed one hundred years full of honor and accomplishment, and we beg to refer our readers to the unusual series of articles which commemorate the event in this current issue of the *Columbia University Quarterly*.

SUPERVISORY NURSES FOR THE BOSTON PUBLIC SCHOOLS.

A BILL (No. 981) relative to the physical condition of children in the public schools of Boston was presented Jan. 24, in the Massachusetts House of Representatives and referred to the Committee on Cities and Towns. This committee after a hearing, at which there was apparently no opposition, reported the bill to the House, but without one of its most important and vital provisions. The sections of the bill which immediately concern us read as follows:

"SECTION 1. The school committee of the city of Boston shall appoint one supervising nurse and as many district nurses as in their opinion are necessary. Said nurses shall hold office for such terms as said school committee may determine and shall perform such duties as said school committee may designate, but more particularly such duties as rendering assistance to the medical inspectors in connection with their work in the public schools of said city, seeing that the directions given by the said inspectors are carried out, and giving such instruction to the pupils as will enable them better to promote their physical welfare.

"SECT. 2. No person shall be appointed as one of said nurses unless she holds a diploma showing that she has taken a course of instruction in, and has graduated from, some institution giving a course of instruction in nursing at least three years in length, and has presented to the school committee satisfactory evidence that she possesses good character and health, and unless in addition she shall have passed an examination given under the direction of said school committee and designed to test the applicant's training, knowledge, character, experience and aptness for the work."

The important provision which has been omitted is the one which stipulates that such nurses shall hold a diploma showing that they have taken a course of instruction in, and graduated from, some institution giving a course in nursing at least three years in length. The bill as originally presented was favored by its sponsors, by other competent medical opinion, by the Boston school committee and by the Public School Association. We believe that all the original supporters of the bill feel that it would be on the whole better to have no legislation rather than to leave so large a latitude in regard to the appointment of nurses in the hands of a school committee. It might be that evidence of a two-years' course of instruction in nursing in a recognized institution would be sufficient to safeguard the interests of the measure proposed, but without this provision at least, it seems to us, that the passage of this bill would be an unfortunate step. It is well known that in New York they have at present a supervising nurse and fifty-four school nurses who are doing good work in aiding the regular medical inspectors. It may not be so well known that certain public spirited organizations in Boston, impressed by the work done in New York and its value, have been furnishing, at their own expense, nurses for work in certain districts of this city. At the present time three of these assistant medical inspectors are being furnished and paid for by the Instructive District Nursing Association, by the Fathers and Mothers Club, and by Mt. Sinai Hospital. These associations consider that they have demonstrated the value of the work and think the city should now take it up. The school committee apparently shared these sentiments and, therefore, approved of the movement which resulted in the bill to which we have above referred.

BUREAU OF HEALTH FOR THE PHILIPPINE ISLANDS.

THE annual report of the Bureau of Health for the Philippine Islands for the year July 1, 1905, to June 30, 1906, has recently appeared. It is, as usual, a pamphlet containing many facts and much useful information which we are not likely to obtain in other ways. The fact that stands out most prominently, as one looks over the pages, is the conviction that not only is progress being made in solving the great medical problems which the islands present, but also that before many years have passed many diseases hitherto feared and rightly so will be practically exterminated. Tuberculosis, typhoid fever, malaria, beriberi, amebic dysentery, leprosy, plague, and various other conditions peculiar to the tropics, are being vigorously attacked and unquestionably with success. Along with the individual work which is being done, medical teaching is not being neglected. A new medical school is about to be established in Manila under government auspices, instruction in which will be given in English. It is designed to model this institution after the medical school of the Johns Hopkins University, and it is expected that forty will be able to matriculate when the school is formally opened. Both sexes are to be admitted, and no discrimination will be made on the part of color or nationality. With such a school established and turning out trained men and women on the spot, there should be no lack of workers in the future, particularly if the intelligent persons among the native population form an increasing proportion

of the medical graduates. A large part of the pamphlet is taken up with statistics, and an admirable series of photographs, many of them illustrative of the Culion Leper Colony, which is being established and which should go far toward the solution of the problem of leprosy in the islands.

MEDICAL NOTES.

Another Misfortune for McGill University. — On April 5, the McDonald engineering building connected with the McGill University was destroyed by fire at a loss of nearly $750,000. On April 16, the medical building, one of the largest composing the university, was also totally destroyed, at an estimated loss of $500,000, together with its equipment, which will be most difficult to replace. The cause of the fire is not known.

Reception at the White House for the Congress of Physicians and Surgeons. — President Roosevelt will receive the members and the ladies, guests and visitors of the Congress of American Physicians and Surgeons, at the White House on Tuesday, May 7, at 2.30 P.M.

Cards of admission will be required at the White House door which may be obtained upon registration at the time of the meeting.

A New Journal. — The first issue of a new journal, to be known as the *Proctologist*, has appeared under the editorship of Dr. Rollin H. Barnes, of St. Louis. The first number contains several original articles, a number of abstracts from other journals bearing on the general subject, together with an introduction by Dr. Joseph M. Matthews and editorial comment.

Ohio Hospital for Epileptics. — Since the opening of this hospital in 1893, according to the last annual report of its superintendent, Dr. William H. Pritchard, 146 men and 102 women have been discharged recovered, making a percentage of 7.3% of the total number under treatment during thirteen years. Such figures are altogether encouraging. In treatment stress is laid upon employment, systematic life, care of the diet, and a moderate use of drugs. Insistence is laid upon the fact that the bromides relieve a symptom, but do not reach the seat of the disease. A certain number of autopsies have been done at the hospital during the year, but no results of significance have been obtained through pathological study.

Leprosy in the Philippines. — According to the last quarterly report of the Bureau of Health of the Philippine Islands, a most remarkable change seems to have come over the people in reference to their attitude toward the leper hospital. It is almost a daily occurrence for persons to apply voluntarily to this Bureau for hospitalization. Many have come from the provinces and requested that they be admitted to San Lazaro Hospital until they could be sent to Culion leper colony. These facts are significant and point to an improvement in the attitude of the people.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, April 10, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 53, scarlatina 33, typhoid fever 4, measles 10, tuberculosis 64, smallpox 0.

The death-rate of the reported deaths for the week ending April 10, 1907, was 21.48.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, April 13, 1907, was 203, against 234 the corresponding week of last year, showing a decrease of 31 deaths and making the death-rate for the week 17.58. Of this number 105 were males and 98 were females; 199 were white and 4 colored; 107 were born in the United States, 92 in foreign countries and 4 unknown; 30 were of American parentage, 142 of foreign parentage and 31 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 46 cases and 4 deaths; scarlatina, 40 cases and 2 deaths; typhoid fever, 5 cases and 0 deaths; measles, 9 cases and 0 deaths; tuberculosis, 59 cases and 22 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 26, whooping cough 0, heart disease 29, bronchitis 6 and marasmus 5. There were 13 deaths from violent causes. The number of children who died under one year was 33; the number under five years 48. The number of persons who died over sixty years of age was 50. The deaths in public institutions were 70.

There were 11 cases and 10 deaths reported from cerebrospinal meningitis during the week.

Opsonins in Surgery. — At a meeting of the Rochester, N. Y., Academy of Medicine, held April 17, Dr. James G. Mumford read a paper on "Opsonins in Surgery."

DEATH FROM ELECTRICITY. — A young woman was found dead last Sunday, sitting beside a telephone instrument at her home in Marlboro, Mass. Examination showed a slight burn on the wrist, indicating that a metallic cuff button had touched the switch as she turned on the electric light, allowing the current to pass through her body into the telephone instrument which she touched with her other hand, on which there were also two burned spots. The accident will be reported on by the medical examiner of the district.

LONG ISLAND HOSPITAL. — The tenth annual report of the Pauper Institutions Department, which includes the hospital and almshouse at Long Island, has recently appeared. The Hon. John B. Martin, official in charge of the department, in his report, speaks appreciatively both of what has been accomplished in the past and of the needs of the future. He draws special attention to the problem occasioned by the presence of tuberculous patients at the hospital, and the overcrowding which necessarily results therefrom. The insufficient provision for the corps of nurses now required is also a matter demanding immediate attention. Mr. Martin is in accord with the visiting medical staff in these and other recommendations. The necessity for the further development of the hospital is acknowledged, a matter to which we have often had occasion to refer.

REPORT OF THE BOSTON LYING-IN HOSPITAL. — The current report of the Boston Lying-In Hospital is this year of special interest because of certain changes which have taken place in its staff. Dr. William L. Richardson retires from the position of visiting physician after an active and peculiarly useful service to the institution of thirty-four years. Dr. Charles M. Green takes Dr. Richardson's position as visiting physician, and Dr. Franklin S. Newell becomes assistant visiting physician. During the year 1906 the number of mothers cared for at the hospital was 785, and 784 children were born and cared for. The daily average number of patients was slightly over 36, with an average stay in the hospital of 17.2 days. In the Out-Patient Department, 1864 women were attended in confinement, with a total number of visits of 27,667. These figures show the active work which the hospital is doing, serving not only as a valuable public charity, but also as an admirable source of instruction for medical students and recent graduates.

NEW YORK.

MORTALITY STATISTICS. — The weekly reports of the Health Department show that the mortality in the city during the month of March represented an annual death-rate of 19.84, as against 20.46 in February and 20.06 in March, 1906. Among the diseases in which there was a diminished fatality were the following: the weekly average of deaths from diphtheria and croup decreased from 51.5 in February to 35.25 in March; the weekly average from acute bronchitis, from 34.25 to 25.25; from pneumonia, from 191.5 to 184; from bronchopneumonia, from 137 to 134.75; from apoplexy, congestion and softening of the brain, from 62.75 to 50.25; from organic heart diseases, from 158.5 to 147.5; and from Bright's disease and acute nephritis, from 128.25 to 121.25. Among the diseases in which there was an augmented mortality were the following: the weekly averages of deaths from measles increased from 6.75 to 11.25; from scarlet fever, from 16 to 18.25; from whooping-cough, from 5.75 to 9.5; from epidemic cerebrospinal meningitis, from 12.5 to 19.5; from pulmonary tuberculosis from 202.75 to 206; from diarrheal diseases, from 49.25 to 54.75; from diarrheals under five years of age, from 41.75 to 47.75; from cancer, from 66.75 to 69; and from cirrhosis of the liver from 21.25 to 22.5.

A MEANS OF TYPHOID INFECTION. — The danger of the possible contraction of typhoid fever from typhoid patients long after the cessation of the disease seems to have been clearly demonstrated in the case of Mary Ilverson, a cook, who has recently been under the observation of Drs. Briggs, Bensel and William H. Park of the Health Department. The attention of the department was directed to it by Dr. George A. Soper, the well-known sanitary expert, who had made a careful investigation of the facts. It appears that six years ago this woman had an attack of typhoid, and although she recovered perfectly and has been in excellent health ever since, her intestinal tract has continued to be a very active culture ground for the development of the typhoid bacillus. As a result, cases of the disease, amounting in all to thirty-eight, are stated to have occurred in nearly every family in which she has lived since her recovery.

SPECIAL MEDICAL MILK COMMISSION. — Mayor McClellan has appointed a special medical milk commission, consisting of the following eminent physicians: Joseph D. Bryant, T. Mitchell

Prudden, Rowland G. Freeman, Abraham Jacobi and L. Emmett Holt. In announcing his action he issued this statement: "In view of the recent discussion on the subject of New York City's milk supply I have to-day (April 2), on my own responsibility and with a view to settling authoritatively this very important matter, appointed a commission of five members to look thoroughly into the entire subject and recommend what steps, if any, are necessary to insure the city an abundant supply of absolutely pure milk."

A Test Case of Responsibility. — A test case fixing the responsibility for negligence on the part of those conducting blasting operations has just been decided in the Court of Appeals. The wife of Julius Hacker, an engineer, who was killed by a piece of rock from a blast during excavations at the Grand Central Station, brought suit against the O'Rourke Engineering and Construction Company for damages. The contention was that the blast was not properly protected, as provided by the city ordinances, and at the trial the jury found a verdict for $8,000. The company having appealed, the Appellate Division of the Supreme Court affirmed the judgment, and the Court of Appeals has now sustained both the trial court and the Appellate Division.

A Centenarian. — John O'Keefe, of Brooklyn, died on April 2, at the reputed age of one hundred and eight years. He was born in Connaught, Ireland, and had lived in Brooklyn for seventy years. He appears to have continued remarkably vigorous to extreme old age, as for the past ten years he had been able to work as an employee of the Greenwood Cemetery Company. He dropped dead from cardiac disease while engaged in mending the gate in front of his house.

Obituary.

GEORGE F. GALE, M.D.

Dr. George F. Gale, well known as a surgeon in New England in his early life, died at his home in Brattleboro, Vt., on Sunday, April 14, after a critical illness of one week. Dr. Gale had practiced in Brattleboro longer than any other doctor who ever lived there, going to Brattleboro in 1858. He was the youngest of eleven children of Jesse Gale and was born in Petersham, Mass., May 19, 1827. After attending Petersham Academy and Middlebury College he was graduated from the Berkshire Medical College in Pittsfield, Mass., in 1855. Before going to Brattleboro he practiced in Cummington and Deerfield, Mass., and Janesville, Wis., and for a time had charge of a smallpox hospital in San Francisco. He was first surgeon of the Eighth Vermont Regiment in 1861 and 1862, and after the battle of Gettysburg he responded to the call for additional surgeons. He was on the first board of bailiffs elected in Brattleboro, a charter member of Beauseant Commandery and the Vermont Wheel Club, President of the Cemetery Association and also of the Society for Prevention of Cruelty to Animals ever since it was formed. He married Vesta Richards Orcutt in Cummington in 1849. She died in May, 1903. Two daughters survive, Miss Martha Clara Gale, of Brattleboro, and Mary Holland, wife of George A. Briggs, of Claremont, N. H. The funeral was held in St. Michael's Episcopal Church, Brattleboro, on Wednesday, April 17.

Current Literature.

The Journal of the American Medical Association. March 30, 1907.

1. *Councilman, W. T. *Changes in Lymphoid Tissue in Certain of the Infectious Diseases.*
2. *Jackson, C. *Meningism as Distinguished from Meningitis.*
3. Allport, F. *The Radical Mastoid Operation.* (Continued.)
4. *Greenberg, H. *Spina Bifida.*
5. Weisenberg, T. H. *Conjugate Deviation of the Eyes and Head.* (Concluded.)
6. *Jones, N. W. *Arseniuretted Hydrogen Poisoning.*
7. Hirschfelder, A. D., and McCaskey, G. W. *Inspection of the Jugular Vein and Visual Methods in the Diagnosis of Heart Block.*

1. Councilman recalls to attention the foci of cellular infiltration in the kidney in acute infections, described by him in 1898. In routine examination of tissue since then he has observed similar interstitial cell accumulations in other organs, most frequently in the adrenal glands, occasionally in the pancreas and in the lungs. He has made a minute study and classification of the forms of cells occurring in these foci. The cells, he concludes, must reach the tissues from the blood, since there are no local cells near where they are found which could give rise to them, and since they are also found in the blood vessels. To discover their ultimate origin, however, we must turn to the lymphoid tissues of the body. In infectious diseases, such as diphtheria, scarlet fever and smallpox, changes consisting essentially in necrosis and following proliferation take place in the lymph nodes, and to some extent in all lymphoid tissue. The new cells formed in this proliferation are at first cells of an indefinite character, some growing into plasma cells, others even resembling myelocytes. These newly formed lymphoid cells enter the blood by the lymphatics, but for some reason show a tendency to leave the blood vessels and to collect in the foci of interstitial infiltration in the kidney and elsewhere. The meaning of this process is a question of pathological physiology which cannot yet be answered. Why the process is more marked in some diseases than in others, and whether the activity of the lymphoid tissues bears any relation to the production of immunity must be determined by further study.

2. Jackson favors the use of the term meningism, introduced by French writers to designate a syndrome with most of the earlier symptoms of meningitis, but without lesions of the meninges and of more favorable prognosis. Any of the symptoms of meningitis may occur, but the erethistic rather than the depressive predominate. The full development of pressure symptoms, paralysis or other indications of actual organic disease,

will usually exclude meningism. He recognizes as etiologic types the toxemic, the reflex and the irritative; in all three there are circulatory changes and in many cases direct action on the cortical cells. In the toxemic cases the noso-toxins in the blood act similarly to toxic drug doses on the cerebrum. The readiness with which the symptoms of meningism can be quieted by small doses of morphin is remarked on by Jackson as an important diagnostic point. These cases are distinct from Quincke's serous meningitis inasmuch as there is no serous involvement. Looking at the condition from the otologist's point of view, the irritative and toxemic cases, he says, when occurring in the course of middle-ear disease, are of the utmost importance as regards diagnosis, and often call for radical operation even if the mastoid is yet uninvolved.

4. Greenberg pleads for the more extended use of operative methods in the treatment of spina bifida, and reports a case, calling attention to certain points in the technique. He employed the muscle flap method of Bayer, improving on it, however, by utilizing the aponeurosis of the latissimus dorsi. A longitudinal incision of sufficient length to cover the defect was made over one side of the spinous processes above the cleft, thus freeing a section of the aponeurosis at its origin on that side. Another longer oblique downward incision was made from the upper point of the first, thus making a triangular flap of aponeurosis free at all points except the apex. Using this apex as a center, the whole flap is rotated downward until it covers the defect of the vertebra on that side. The same procedure is followed on the other side, and the borders of the flaps are united with chromicized catgut directly over the defect, giving a covering next to bone in strength and consistency. His patient, who had been getting steadily worse, began to improve and was nearly well in two months. The pressure on the cord, which had lasted for sixteen years, and had suspended the function of the cord, had not so impaired its tissue as to prevent a speedy alleviation of symptoms and restoration of function. The article is illustrated.

6. Jones gives the history of five cases of poisoning by arseniuretted hydrogen in workers with the cyanide process of gold extraction from low grade ores, and also tabulates fifty-five other cases of poisoning from this gas collected in medical literature. Considering the very common presence of arsenic in the materials used in this process a rather frequent occurrence of such poisoning might be looked for, but these cases seem to be exceptional. It seems rather remarkable that so few cases of this poisoning from all sources are on record in view of the numerous possible sources in the arts and manufactures. Jones discusses the pathology, symptomatology and treatment and reviews the literature in regard to the effects on the system. The poison acts differently from the other salts of arsenic. The blood and kidneys are principally involved, the hemoglobin and red cells being attacked and the kidneys undergoing an intense degenerative process mainly involving the convoluted tubules, and the glomeruli least. The three characteristic symptoms are pain in the region of the kidneys, hemoglobinuria, which is a constant symptom, and jaundice, probably obstructive, though the disturbed liver cell function may play a part. Death, when it occurs, is undoubtedly largely due to acute urinary suppression. Some patients have shown uremic symptoms, but the majority do not. Twenty of the cases tabulated were fatal, death occurring in from two to thirty days, the average being 8.2 days. The chief indications in treatment are: First, abundant fresh air and administration of oxygen. Second, the production of free diuresis to prevent blocking of the uriniferous tubules with disintegrated blood cells and epithelium. Saline enemas and warm baths may also be useful. General supportive treatment is of course required. Active diuresis is a very favorable sign, as the majority of patients with polyuria recover. [F. W. P.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.
MARCH 14, 1907.

1. *FLEXNER, S. *Biology of Diplococcus Intracellularis.*
2. *FLEXNER, S. *Experimental Cerebro-Spinal Meningitis in Monkeys.*
3. *FLEXNER, S. *Serum Therapy for Experimental Infection with Diplococcus Intracellularis.*
4. *BEATTIE, J. M. *Bacteriology of Rheumatic Fever.*
5. OPIE, E. L., and BARKER, B. I. *Leukoprotease and Anti-Leukoprotease.*
6. FIELD, C. W., and TEAGUE, O. *Electrical Charge of Native Proteins and Agglutinins.*
7. *CARREL, A. *Heterotransplantation of Blood Vessels Preserved in Cold Storage.*
8. *SWEET, J. E., and LEVENE, P. A. *Nuclein Metabolism in a Dog with Eck's Fistula.*

1, 2 and 3. Flexner's three articles on the results of his work as a member of the commission appointed by the Health Department of the city of New York in 1905, to investigate the epidemic of meningitis. The first article is a detailed account of observation upon the biology of the organism of the disease. The second is a report of his experience in obtaining experimental infections closely resembling meningitis in man, in lower animals, particularly in monkeys. The third article describes his experiments with antitoxic sera in cases of experimental meningitis in these animals. The articles as a whole are of too technical a nature to admit of brief summarization. Their main practical interest lies in the fact that by the employment of the anti-diplococcus sera distinct results were obtained both in immunization and in combating the infection. By means of the serum treatment several infected monkeys were saved from death when they would otherwise have died. The curative action of the serum, however, was not sufficiently constant or striking to give immediate hope for the establishment of a serum therapy for human cases of meningitis.

4. Beattie describes the organism, probably the same as that of Wasserman and others, which he believes to be the cause of rheumatic fever. He meets the objections raised by opponents of his views, and gives in a somewhat condensed form the evidence upon which his views are based. The organism has been isolated from definite cases of acute rheumatism, has been cultivated outside the body, has produced in rabbits and in monkeys polyarthritis, endocarditis and other manifestations of rheumatic fever, and has again been isolated from the lesions in these organs. The principal objection raised by those who believe that acute rheumatism is simply an attenuated pyemia is that the organism isolated is an ordinary streptococcus. But acute rheumatism differs from even mild pyemias in its lack of pus formation. That the *micrococcus rheumaticus* differs from any ordinary streptococcus is shown by certain cultural properties, and also by its behavior in inoculation experiments. Beattie injected rabbits with twelve different strains of streptococci and with three strains of his own organism. Of the streptococcus animals 18% showed arthritis and 2% endocarditis; of the *micrococcus rheumaticus* animals, 60% showed arthritis and 3% endocarditis. In the streptococcus cases the arthritis was in every instance purulent. In the *rheumaticus* cases the arthritis was never purulent. The *micrococcus rheumaticus* has been obtained from the blood in life, but in some cases it is not demonstrable either in the blood or the joint fluid, but only in the synovial membrane. He concludes that from the difference in results of injection experiments with the *micrococcus rheumaticus* and with streptococci the *micrococcus rheumaticus* cannot be regarded as an attenuated streptococcus, nor acute rheumatism as an attenuated streptococcal pyemia.

7. Carrel succeeded in replacing an excised portion of the abdominal aorta of a cat by a segment of carotid artery removed from a dog twenty days before and kept in salt solution at about 32° F. Forty-eight days after operation the abdomen was opened, and the inserted segment found to be doing its work as a part of the aorta. The animal is alive and well, with normal pulsations in the femoral arteries, at the date of this paper.

8. The work of Sweet and Levene is of interest rather to the physiologist and the physiological chemist than to the clinician, since the questions with which it deals are as yet too uncertain to serve as the basis for practical deductions. Their object is to obtain some measure of the proportion of the total nitrogen excretion which is due, not to the metabolism of food-stuffs, but to the destruction of cellular substances. There is reason to believe that the

cellular nitrogen is metabolized through nucleins and purin bases to uric acid, which is changed in the liver to urea. To prevent the action of the liver upon uric acid, an anastomosis was made in a dog between the portal vein and the inferior vena cava, so that the portal blood would discharge into the vena cava without passing through the liver (Eck's fistula). Analysis of the excretions of this dog showed an abnormally high output of uric acid, even on a diet free from purins. The giving of nucleoproteids further increased the uric acid excretion. Starvation in this dog, contrary to observations in normal dogs, also increased the uric acid excretion, supposedly from destruction of cellular tissues. These results are a strong confirmation of the truth of the suppositions which suggested the experiment, and further give quantitative data as to the amount of cellular metabolism in this dog.

[F. W. P.

The Lancet.
March 23, 1907.

1. Abrahams, B. L. *The Permanent Defences of the Body.*
2. Buzzard, E. F. *Certain Acute Infective or Toxic Conditions of the Nervous System.*
3. Walker, J. W. T. *The Renal Function in its Relation to Surgery.*
4. Bashford, E. F., and Murray, J. A. *Carcinoma Mammæ in the Mouse.*
5. *Bunch, J. L. *On Opsonins and Immunity.*
6. Jacksontaylor, B. J. F. *A Note on Tests for Acetone in the Urine.*
7. Campbell, H. *The Role of the Blood Plasma in Disease.*

5. This is a short but clear presentation of the opsonic theory and its technique and practical application. Bunch discusses what the practising physician can and cannot do in this line. [J. B. H.]

British Medical Journal.
March 23, 1907.

1. *Barker, A. E. *A Report on Clinical Experiences with Spinal Analgesia in 100 Cases, and Some Reflections on the Procedure.*
2. Arnold, G. J. *Infiltration Anesthesia in Major and Minor Surgery.*
3. Bishop, E. S. *An Address on Cholelithiasis.*
4. Maclaren, R. *The Removal of Enlarged Tonsils.*
5. Moynihan, B. G. A. *A Case of Gastro-Enterostomy, Combined with Gastrostomy, for Ulceration of the Stomach, Caused by Swallowing Hydrochloric Acid.*
6. Savage, G. H. *Insanity, its Causes and Increase.*

1. Barker emphasizes the fact that he does not recommend spinal anesthesia as a general routine in surgery, but does think that it should be given a thorough trial before discarding it as worthless. The results in his series of 100 cases show clearly that in certain instances, at least, where a general anesthetic was impossible, this method has been perfectly satisfactory and has been a means of saving life. The discovery of stovain has rendered the procedure much less dangerous than when cocaine was used. The time of anesthesia was from twenty-three minutes to two hours; the ages of the patients varied from fifteen years to seventy years; the operations were of all kinds. He believes that there is a place for spinal anesthesia in surgery, but only when used by careful and experienced men. The greater part of the paper is taken up with a discussion of the effects during and after operation, the technique and precautions to be observed, etc.

[J. B. H.]

The Edinburgh Medical Journal.
March, 1907.

1. *Osler, W. *Cerebro-Spinal Fever.*
2. Urquhart, A. R. *On Insanity, with Special Reference to Heredity and Prognosis.*
3. Marshall, F. H. A., and Jolly, W. A. *The Nature of the Ovarian Influence on the Uterus.*
4. *Moynihan, B. G. A. *The Mimicry of Malignant Disease in the Large Intestine.*
5. Smith, P. C. *Degeneracy.*

1. Osler writes a most interesting description of this disease from an historical and clinical point of view.

4. Moynihan reports in detail six cases of disease of the large intestine which before and during operation resembled malignant disease. These cases consisted of, (1) a non-malignant over-growth of the mucous glands of the large intestine, with intestinal obstruction; (2) perforative sigmoiditis with localized abscess, probably a perforation of a false diverticulum; (3) transverse pericolitis with a localized hypertrophy of the wall of the intestine; (4) a non-malignant exuberant cauliflower-like growth of the rectum causing obstruction; (5) false diverticula of the sigmoid with sigmoiditis, and (6) a non-malignant tumor of the transverse colon and splenic flexure requiring ileo-sigmoidostomy. These tumors were for the most part of inflammatory origin, and are probably much more frequent than is supposed. [J. B. H.]

Deutsche Medizinische Wochenschrift.
No. 11, March 14, 1907.

1. *Beck, C. *Gangrene of the Lungs.*
2. *Rosenheim. *Infiltrating Colitis and Sigmoiditis.*
3. Hoffa. *The Treatment of Tubercular Coxitis.* (Concluded.)
4. Hirschberg. *A Rare Case of Cataract Extraction.*
5. Jellinek, S. *The Pathology, Treatment and Prophylaxis of Electrical Shock.* (Concluded.)
6. Zweig, A. *Hydrotherapy at the Climacterium.*

1. Beck discusses gangrene of the lungs from the surgical standpoint. Nearly all the cases are in children from aspiratory causes. The areas involved can and should be carefully located with the x-ray and then treated by a surgical operation.

2. Rosenheim has had considerable experience with a circumscribed inflammatory process, involving any part of the colon, but most frequently the region of the sigmoid flexure. He reports five cases, the anatomical pictures of which vary from an acute phlegmonous infiltration of the intestinal wall, with ulcers of the mucosa and pericolitis, to a hard infiltration with hypertrophy of the muscle layers and only slight stenosis of the lumen, the tumor being mainly produced by a spastic condition of the muscles. Usually the course is an exceedingly chronic one, with occasional exacerbations. The tumors are elongated, smooth, sausage-shaped masses, very painful and not hard to the touch. The symptoms, in acute as well as in chronic forms, can resemble any variety of intestinal disturbance, and the differential diagnosis from cancer can only be made by careful study and observation. When there is a tumor of the lower region of the colon, with passage of well-formed fecal masses, there can be no stenosis of the lumen of the canal, and this points to an inflammatory process other than cancer. With careful dietetic treatment, rest, rectal injections of oil and building up of the nervous tone, the symptoms gradually subside.

[L. G. M.]

Münchener Medizinische Wochenschrift.
No. 10, March 5, 1907.

1. *v. Starck, W. *The Diagnosis of Infantile Scurvy.*
2. *v. Hippel and Pagenstecher, H. *The Influence of Cholin Injections and of the X-Ray on the Course of Pregnancy.*
3. *Schmid, J., and Géronne, A. *The Action of the X-Ray on Nephrectomized Animals.*
4. Geigel, R. *The Strength of the Percussion Stroke.*
5. *Schlesinger, E., and Holst, F. *The Value of the Benzidin Test for the Demonstration of Minute Hemorrhages.*
6. Kroemer, P. *A Case of Anus Opening into the Vulva Cured by Operation.*
7. Auerbach, S., and Grossmann, E. *A Case of Jacksonian Epilepsy Cured by Operation.*
8. Rahn, A. *Ovogal, a New Cholagogue.*
9. Struppler, T. *Lipoma of the Pericardium.*
10. *Pagenstecher, A. *Enophthalmos.*
11. Seefelder. *The Prophylaxis of Ophthalmia of the New-Born.*
12. Wende. *The Treatment of Hammer-Toe.*

1. Von Starck considers the following symptoms of infantile scurvy as most important: (1) increasing anemia, (2) hemorrhagic swelling of the gums, (3) pain on motion, (4) periosteal swellings, (5) hematuria and (6) exophthalmos and hemorrhagic swelling of the eyelids. It should be noted, however, that anemia is not necessarily present in the early stages. The swelling of the gums may be slight, but the characteristic purple discoloration is almost always present. X-ray examination may be important, showing a dark transverse shadow at the end of the diaphysis and at times also periosteal swellings due to hemorrhage. The prompt response to treatment with fruit juices and raw milk may be of diagnostic aid in obscure cases.

2. Von Hippel and Pagenstecher report interesting experiments on the effect of the x-ray and cholin injections on pregnant rabbits. They observed in many instances death of the fetus. Whether absorption or abortion took place, they were unable to determine, but considered the former more probable. The same effect was produced by the x-ray when the abdomen was protected during the exposure. The interruption of pregnancy must be due, therefore, to substances reaching the fetus through the blood current and not to direct action by the x-ray. Congenital cataracts were also observed in some cases in which the death of the fetus did not take place.

3. Prolonged exposure to the action of the x-ray produces leucopenia. This is probably due to destruction of the white cells and the production of a toxic substance, the so-called leucotoxin, which has a marked destructive action on leucocytes. Schmid and Géronne exposed nephrectomized rabbits to the action of the x-ray and found that leucopenia was induced in them much quicker than in normal control animals who were exposed for the same length of time. Nephrectomy alone did not cause a diminution of leucocytes. This they consider proof that the leucotoxin is normally excreted by the kidneys; in the nephrectomized animals it accumulated in the body and gave rise to a rapid decrease in white corpuscles.

5. Schlesinger and Holst from Strauss's laboratory in Berlin report further results with the benzidin test for blood in the feces and urine. As performed by them, the test is never positive in persons on a meat-free diet unless there is blood present. They have found it very reliable and more delicate than either the guaiac or aloin tests. A piece of feces the size of a pea is used for the test; the reagent consists of a mixture of ½ cm. of a freshly prepared solution of benzidin in glacial acetic acid with 3 cc. of a 3% solution of hydrogen peroxide. The bit of feces is stirred up in one fifth of a test-tube of water, the reagent is added and the whole shaken. If blood is present a handsome blue color appears, or if the amount is small a clear green. When urine is to be tested it should be treated first with a small volume of glacial acetic acid and extracted with ether. The ether extract is cleared with a few drops of absolute alcohol, removed with a pipette and added to the benzidin reagent. The test is especially valuable in hemoglobinuria, where the microscopic examination for erythrocytes is negative.

10. Enophthalmos is the opposite of exophthalmos, and consists of a sinking back of the eye into the orbit. Pagenstecher reports two cases of the traumatic variety, which is always the result of injury in the neighborhood of the eye, with fracture of one of the walls of the orbit. In some cases the retraction of the eye-ball takes place soon after the accident, and it is here supposed to be due to the escape of the fat from the back of the orbit. In other instances where it appears late it is due to contraction of scar tissue which pulls the eyeball back. Limitation of movement of the eye with double vision is often present, due more to injuries to the muscles and secondary contractures than to nerve lesions. [W. T.]

BERLINER KLINISCHE WOCHENSCHRIFT, No. 9. MARCH 4, 1907.

1. EHRLICH, P. *Chemotherapeutic Studies on Trypanosomes.* (Continued acticle.)
2. GOTTSTEIN, G. *The Technic of Bronchoscopy.*
3. *SCHÜLLER, M. *The Cause of the Proliferation in Cancer and Sarcoma in Man.*
4. *DONATH, J. *The Supposed Significance of Lactic Acid in Eclampsia.*
5. NEUMANN, H. *Erroneous Interpretation of a Physical Thoracic Sign in Children.*
6. *SEELIGSOHN, W. *A Case of Amaurosis due to Quinine.*
7. TOBIAS and KINDLER. *The Physical Treatment of Tabes Dorsalis.* (Continued article.)

3. Schüller describes parasites found by him in the nuclei of tumor cells in cancer and sarcoma, which he regards as the cause of these diseases. They penetrate the nucleus and by their multiplication give rise to division of the nucleus and to the rapid proliferation characteristic of these tumors. The organisms are classified with the sporozoites; spores, microgametes and other forms are described.

4. Donath refutes the theory recently advanced by Zweifel and others that puerperal eclampsia is due to poisoning with lactic acid, and shows that the lactic acid found in the blood and urine is merely the result of the violent muscle contractions, just as in epilepsy. Animal experiments with sodium lactate showed that this substance is not poisonous.

5. Seeligsohn's case of blindness due to quinine showed the usual appearances of extreme narrowing of the retinal arteries with pallor of the disc, followed later by atrophy. There was also mydriasis with loss of pupillary reaction to light and accommodation. Restoration of sight within two months incomplete as regards colors. Quinine amaurosis is rare, and requires for its production a previous lowering of resistance, usually either from malaria or anemia. Its cause is to be sought in a combination of ischemia due to contraction of the vessels with direct toxic action on the ganglion cells of the retina. [W. T.]

DEUTSCHE ARCHIV FÜR KLINISCHE MEDIZIN. BD. 88, HFT. 4–6, 1907.

1. *HOLST, NICOLAYSEN and USTREDT. *Investigations on the Duration of Life in the Phthisical in Norway.*
2. *KREHL. *Disturbance of Chemical Correlation in the Organism.*
3. BOHR. *Functional Changes in the Median Respiratory Level and Vital Capacity of the Lungs.*
4. *MEYER and HEINEKE. *Blood Formation in Severe Anemias and Leukemias.*
5. *MORAWITZ. *A Typical Severe Anemia.*
6. *BLUMENTHAL. *The Coli-Typhoid Group in Relation to Disease of the Biliary Passages.*
7. MÜLLER. *The Influence of Hydrochloric Acid on Pepsin Digestion.*
8. *ZAK and NECKER. *The Excretion of Euglobulin in the Urine in Amyloid Disease.*
9. *NAGEL. *The Polyuria of Contracted Kidney.*
10. JOACHIM. *A Further Contribution to Conduction Disturbances in Cardiac Muscle.*

1. This is a statistical study of tuberculous patients in Norway made by a committee appointed by the Medical Society of Christiania, and concerns patients not treated in sanatoria. The data were collected by means of circular letters sent to physicians throughout the country. Seventy-three physicians reported on 2,293 patients treated during 1891–1900. No patients had been observed for less than four years. Two thousand and five cases were sufficiently completely reported to be used in these statistics. Of these, 905 were males and 1,100 females. At varying periods of the disease it was determined how many were living, how many dead, *e. g.*, at the end of six months of disease among 905 men 6% were dead; at the end of twelve months 18.6% dead; at the end of three to three and a half years half were dead; at the end of ten years 16.2% were living and 83.8% dead. Of the total number of cases dead during the period of observation, the average duration of the disease was thirty-seven months for males, thirty-eight months for females. Of the living the number capable of working was determined as follows: at the end of four years, of 908 living 52.3% were capable of work, 8.7% partly capable, 3.6% incapable and 35.4% unknown; at the end of ten years, of 272 living 65.8% were capable of work, 12.8% partly capable, 4% incapable and 17.4% unknown.

2. Krehl in an address delivered before the Naturforscherversammlung in Stuttgart points out what complex and varying changes follow lesions or removal of various organs of the body. As he says, a perversion of one function of one organ may necessitate a readjustment of function in many parts of the body. He cites many examples of this, as the changes following castration, lesions of the adrenal, removal of the thyroids or parathyroids, nephritis and many more. Many of these changes are the results of chemical processes, and the correlation of any chemical change with the hundreds of other chemical processes of the body must be exceedingly complex. It is this complex correlation of chemical changes which we must consider in explaining the great multiplicity of symptoms which we observe in different patients suffering from the same disease. Scarcely any diseased patient is like his fellow, and a relatively small number of patients thus present daily new and oft unsolvable mysteries.

4. Meyer and Heineke have studied the blood pictures and the histological changes in the viscera in a group of severe anemias and leukemias. The group included 2 cases of chronic lymphatic leukemia and 1 of acute, 4 of myelogenous leukemia, 6 of pernicious anemia, 3 of leukanemia and 1 of streptococcus sepsis. They find a distinct difference in the viscera between myelogenous and lymphatic leukemia in that in the latter there is a general proliferation of the lymphoid tissues, while in the former the lymphatic tissue is only passively permeated by myeloid tissue. The myeloid transformation in the spleen always takes place in the pulp. In pernicious anemia there is almost always a myeloid transformation of the spleen, frequently of the liver, rarely of lymph nodes. In spleen and liver there is in anemia both an extra and intravascular blood formation, the former of white cells, the latter of red. These changes are to be regarded as compensatory. The high color index of pernicious anemia results from young red cells entering the circulation and is absent in cases of aplastic anemia. Leukanemia results when there is an active formation of both red and white cells in the viscera, but the condition seems primarily a severe anemia.

5. Morawitz reports two cases of acute severe atypical anemia as illustrative of the difficulties sometimes presented in an attempt to classify blood diseases. The first case was a boy of sixteen who was suddenly taken ill with a chill, fever, headache and vomiting. Four days later a blood count showed red cells 881,000, hg. 25–30%, white cells 9,800, of which 4½% were myelocytes. There was marked poikilocytosis, polychromatophilia, with normoblasts and megaloblasts. Twelve days later red cells had increased to 1,300,000 and white cells were 4,000, with 15% myelocytes. Five days later red cells were 1,952,000, white cells 5,400, with myelocytes 6.2% and no nucleated red cells. Five days later still there were 3,200,000 red cells, hg. 60%, white cells 9,800, no myelocytes and no abnormal red cells. The second case was a boy of fifteen, who was taken sick with vomiting and diarrhea. The following day he had 3,396,000 red cells, 35% hg., 15,000 leucocytes, with 16½% myelocytes and many normoblasts and megaloblasts. Four days later the red cells were 1,900,000 and white cells 12,400. Fourteen days later the reds were 1,612,000, whites 22,600, myelocytes 20%. Eleven days later the reds were 2,470,000, hb. 55%, whites 14,000, myelocytes 3.8% and nucleated reds much decreased. Five months after the onset his blood was microscopically normal, his red cells 3,500,000. Both these cases are of the group described as leukanemia, but Morawitz regards them as more closely related to anemia than to leukemia.

6. In a bacteriological study of the bile from fourteen patients operated on for cholelithiasis or cholecystitis Blumenthal isolated B. coli four times, B. paratyphi once, B. typhi four times and an atypical B. coli once. In one case in which B. typhi was found in pure culture at operation, B. coli appeared later. Blumenthal thinks that in many cases in which B. coli alone is isolated it may be a secondary invader, and this view very much strengthens the importance of the typhoid-paratyphoid group as etiological factors in cholecystitis, and as well in chronic gall bladder lesions. The tpyical B. coli of the intestine seems rarely to produce lesions in the gall bladder, and its frequent occurrence in earlier reports may well be the result of defective methods of identification. These ideas are of practical importance in the question of "bacillus-carriers" as infecting agents. If organisms of the typhoid group are so frequently associated with gall bladder lesions, these people in turn are an infecting menace to their fellows and should be operated on to clear them of these bacteria, that being the only way to free the gall bladder of bacteria.

8. See Progress in the Theory and Practice of Medicine, Boston Medical and Surgical Journal, 1907, p. 365.

9. See Progress in the Theory and Practice of Medicine, Boston Medical and Surgical Journal, 1907, p. 366.

[H. A. C.]

Correspondence.

"THE PROCREATION OF DEFECTIVES."

Boston, April 15, 1907.

Mr. Editor: Your editorial on the "Procreation of Defectives" in the issue of March 28, suggests to me a thought which I would like to put before your readers.

The bill before the legislature of Indiana mentions heredity as playing a most important part in the transmission of crime, idiocy and imbecility and suggests that upon the approval of a board of surgeons, a surgical operation shall be performed upon those considered to be comfirmed criminals, idiots, rapists and imbeciles. In commenting on this, you state that in the present condition of knowledge such legislation would do little to help matters and might lead to serious abuses.

It is true that we cannot be sure that the child will inherit the tendencies of the parent, but the probability is that the child of the criminal, the imbecile, or the degenerate, will be born handicapped for life, both physically and mentally.

It is also true that the question of race improvement does not rest entirely on heredity. Nevertheless, we must remember that not only do the parents furnish this factor to their children, but the condition of the parents fixes the environment of the most important periods of life, the formative periods of infancy and youth. Certainly no criminal, no insane person, and no degenerate can furnish a proper environment for the child, whatever tendency he may transmit.

The method of checking procreation mentioned in the bill from which you quote is a surgical operation, but no such thing is necessary. We now know that x-ray treatment will produce sterility in the male. This treatment is painless, it is easy to give and as it does not produce impotence, there would seem to be no objectionable features connected with it. The substitution of this treatment for a surgical operation would, it seems to me, put the matter in a different light.

Truly yours,

A. A. Merrill.

THE LEGAL AID SOCIETY.

Boston, April 15, 1907.

Mr. Editor: The Legal Aid Society has opened an evening branch office at No. 6 East Brookline Street near Washington Street and has appointed me to take charge of the office. At present I may be found there Wednesday evenings from eight to nine P.M. and shall be glad to give legal advice or furnish legal services without charge to all persons who are in need of them and are unable to procure a lawyer for themselves. If any of you meet with or hear of any worthy case in your practice a card from you brought to my office at No. 6 East Brookline Street will command my services without charge. It is the purpose of the Legal Aid Society to co-operate closely not only with the charitable organizations in the city, but with the members of the medical profession, and I hope that any of you will feel at liberty to command my services at any time on behalf of patients of yours or others you hear of who need assistance.

Respectfully yours,

Henry R. Scott

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 6, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,540	482	Quincy	6	1
Chicago	686	219	Waltham	8	4
Philadelphia	—	—	Gloucester	10	1
St. Louis	—	—	Pittsfield	10	2
Baltimore	207	52	Brookline	2	—
Cleveland	—	—	North Adams	8	2
Buffalo	—	—	Chicopee	7	2
Pittsburg	—	—	Northampton	9	3
Cincinnati	—	—	Medford	5	—
Milwaukee	—	—	Beverly	6	1
Washington	—	—	Hyde Park	5	—
Providence	81	21	Newburyport	—	—
Boston	248	55	Leominster	4	1
Worcester	49	9	Melrose	4	1
Fall River	52	18	Woburn	—	—
Cambridge	20	6	Marlboro	2	0
Lowell	28	6	Westfield	4	—
Lynn	33	12	Peabody	—	—
New Bedford	39	14	Revere	3	—
Springfield	18	4	Clinton	10	2
Lawrence	31	9	Attleboro	3	0
Somerville	20	2	Adams	3	—
Holyoke	10	8	Gardner	—	—
Brockton	13	3	Milford	—	—
Malden	4	1	Weymouth	6	0
Salem	15	6	Framingham	3	—
Chelsea	10	3	Watertown	2	1
Haverhill	22	5	Plymouth	—	—
Newton	8	2	Southbridge	4	2
Fitchburg	10	4	Wakefield	—	—
Taunton	—	—	Webster	—	—
Everett	12	4			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING APRIL 13, 1907.

C. D. LANGHORNE, surgeon. Detached from duty at Naval Medical School Hospital, Washington, D. C., and ordered to the Navy Yard, Washington, D. C.

R. E. RIGGS, passed assistant surgeon. Detached from Naval Station, Port Royal, S. C., and ordered to the "Texas."

R. G. HEINER, assistant surgeon. Detached from Navy Yard, Washington, D. C., April 15, and ordered to attend course of instruction at the Naval Medical School, Washington, D. C.

J. H. MCGUIGAN, pharmacist. Detached from marine barracks, New York, N. Y., and ordered to Washington, D. C., April 11, for examination for retirement, and thence home to wait orders.

SOCIETY NOTICES.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS. — The Congress of American Physicians and Surgeons will hold its seventh triennial meeting in Washington, May 7, 8 and 9.
W. H. CARMALT, M.D., *Secretary.*

ASSOCIATION OF AMERICAN PHYSICIANS. — The Association of American Physicians will hold its twenty-second annual meeting at the New Willard Hotel in Washington, May 7, 8 and 9.
HENRY HUN, M.D., *Secretary.*

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION. — The American Gastro-Enterological Association will hold its tenth annual meeting at Atlantic City, N. J., June 3 and 4.
CHARLES D. AARON, M.D., *Secretary.*

AMERICAN PEDIATRIC SOCIETY. — The American Pediatric Society will hold its annual meeting in Washington, May 7, 8 and 9.
SAMUEL S. ADAMS, M.D., *Secretary.*

THE AMERICAN ORTHOPEDIC ASSOCIATION. — The American Orthopedic Association will hold its annual meeting in Washington, May 7, 8 and 9.
ROBERT OSGOOD, M.D., *Secretary.*

AMERICAN CLIMATOLOGICAL ASSOCIATION. — The American Climatological Association will hold its annual meeting in Washington, May 7, 8 and 9.
GUY HINSDALE, M.D., *Secretary.*

AMERICAN OTOLOGICAL SOCIETY. — The American Otological Society will hold its annual meeting in Washington, May 7, 8 and 9.
F. L. JACK, M.D., *Secretary.*

AMERICAN SURGICAL ASSOCIATION. — The American Surgical Association will hold its annual meeting in Washington, May 7, 8 and 9.
ROBERT G. LECONTE, M.D., *Secretary.*

AMERICAN LARYNGOLOGICAL ASSOCIATION. — This association will hold its annual meeting in Washington, May 7, 8 and 9.
JAMES E. NEWCOMB, M.D., *Secretary.*

AMERICAN OPHTHALMOLOGICAL SOCIETY. — This society will hold its annual meeting in Washington, May 8.
S. B. ST. JOHN, M.D., *Secretary.*

AMERICAN THERAPEUTIC SOCIETY. — This society will hold its annual meeting in Washington, May 4, 6 and 7.
NOBLE P. BARNES, M.D., *Secretary.*

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS. — The National Association for the Study and Prevention of Tuberculosis will hold its third annual meeting at the New Willard Hotel, Washington, May 6, 7 and 8.
LIVINGSTON FARRAND, M.D., *Secretary.*

RECENT DEATH.

DR. W. F. MORRISON, of Providence, R. I., died suddenly at his home April 9, at the age of forty-nine. He graduated from the Harvard Medical School in 1882, and at the time of his death was a member of the American Medical Association, Rhode Island Medical Society and Providence Medical Society.

BOOKS AND PAMPHLETS RECEIVED.

University of California Publications. Physiology. On the Production of a Fertilization Membrane in the Egg of the Sea-Urchin with the Blood of Certain Gephyrean Worms. By Jacques Loeb.

The Röntgen Rays in Medical Work. By David Walsh, M.D., Ed. Fourth edition. Illustrated. New York: William Wood & Co. 1907.

Essentials of Chemistry and Toxicology. For the Use of Students in Medicine. By R. A. Witthaus, A.M., M.D. Thirteenth edition. Revised by R. J. E. Scott, M.A., B.C.L., M.D. New York: William Wood & Co. 1907.

Memoir of Dr. William S. Forbes. By Frederick P. Henry, M.D. Reprint.

Thirty-first Annual Report of the Ladies' Union Charitable Society (Incorporated) Conducting the Lawrence, Mass., General Hospital and Children's Home, for the Year ending Sept. 30, 1906.

Annual Report of the Health of the Imperial Navy for the Year 1904. Tokyo.

Tuberculosis as a Disease of the Masses and How to Combat It. Fourth issue. Revised and Illustrated. Prize Essay. By S. A. Knopf, M.D. New York: Fred P. Flori. 1907.

Some Aids in Teaching Climatology and Climatotherapy. By Guy Hinsdale, A. M., M.D. Reprint.

Die spezifische Therapie der Tuberkulose. Von Prof. E. Maragliano.

Thérapeutique Spécifique de la Tuberculose. Par Le Professeur Maragliano. Paris: A. Poinat. 1906.

Health-Education Series, No. 12. Emergencies. By Marshall H. Bailey, M.D. Boston: Health-Education League. 1907.

International Clinics. By Leading Members of the Medical Profession throughout the World. Edited by W. T. Longcope, M.D. Seventeenth series. Vol. I. 1907. Philadelphia and London: J. B. Lippincott Co. 1907.

A Manual of Obstetrics. By A. F. A. King, A.M., M.D., LL.D. Tenth edition. Revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1907.

Surgical diseases of the Chest. By Carl Beck, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Transactions of the American Climatological Association for the Year 1906. Vol. XXII. Philadelphia. 1906.

Traitement Chirurgical du Cancer du Colon. Par Le Dr. Joseph Okinczyc. Paris: G. Steinheil. 1907.

The Present Position of the Medical Schism. By Kenneth W. Millican. Reprint.

Physical Diagnosis. With Case Examples of the Inductive Method. By Howard S. Anders, A.M., M.D. Illustrated. New York and London: D. Appleton & Co. 1907.

University of California Publications. Physiology. Note on the Synthesis of a Protein through the Action of Pepsin. (Preliminary Communication.) By T. Brailsford Robertson.

Treasury Department. Public Health and Marine-Hospital Service of the United States. Hygienic Laboratory. Bulletin No. 33. Studies in Experimental Alcoholism. By Reid Hunt. Washington. 1907.

Abnormality in Amniotic Secretion in its Relation to Fetal Malformation. By Joseph Brown Cooke, M.D. Reprint.

APR 27 1907 LIBRARY

Address.

HISTORY AND ETHICS IN MEDICINE.*

BY JAMES G. MUMFORD, M.D., BOSTON.

"Why, all the Saints and Sages who discuss'd
Of the Two Worlds so wisely, — they are thrust
Like foolish prophets forth; their words to scorn
Are scattered, and their Mouths are stopt with Dust."

Rules to govern the practice of medicine began with the priests of Isis, centuries before our era, and the selfish guilds of that time were able to enjoin that healers of the sick must become part of their fold, or must cease to cumber the earth. Priestcraft was a function of government, and arrogated to itself the care of diseased bodies as well as of diseased minds.

In those days there was government supervision of practice in a sense which modern thought abhors. Such control was possible under an absolute monarchy only, in which the ruler was regarded as almost divine; but, when wars and tumults, and foreign invasion and revolution came, the old close medical corporation was broken up, and competition entered in. A class of physicians who were not priests grew up, — a class whom the law ceased to protect. They could no longer persecute and destroy their unlicensed rivals, so they betook themselves to ethics.

Egypt was not the only land which knew such changes. Throughout the ancient and medieval worlds fluctuations in custom occurred; at times there was a control of practice by statute, — civil or ecclesiastical; at times there was chaos, with such little decency as good ethics might enjoin and enforce.

I think that is an interesting reflection, and it is interesting also to recall that in those countries which have been the most enlightened, which have been most democratic in their customs and mode of thought, — in just such countries have superstition and vapid medical tradition and routine languished, while advanced liberal thought has flourished, science has progressed, quackery and falsehood have made the least progress, mild laws have sufficed and ethics have triumphed. Such were the conditions in the Greece of the fourth century B. C., when the great Hippocrates lived. Hippocrates and his associates were the first to see clearly and to formulate the relations which should exist between physicians, and between physicians and patients; and so to Hippocrates we owe that famous oath, — the bond to which all right thinking doctors have ever since subscribed:

"I swear . . . to follow that system of regimen which I consider for the benefit of my patients; . . . I will give no deadly medicine; . . . I will not produce an abortion; with purity I will pass my life and practice my art; . . . I will enter a house for the benefit of the sick only. . . . Whatever I hear and see in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret."

There is a feeble and fatuous word, etiquette, by which the unthinking are wont to cloak the noble qualities of ethics. Alas! that such a Turveydrop semblance should have been given a precedence by feeble minds; that the outward and visible sign should have shouldered aside the inward and spiritual grace.

Ethics signified originally *character*. It deals philosophically with conditions which affect the human family for good or ill. Etiquette codifies the superficial relations which govern men in the drawing-room or the club. Ethics directs that there shall be honor among gentlemen; etiquette that they shall tread softly and wear evening dress. Hippocrates marked the distinction. That great man struck at the root of the matter, and, like St. Paul himself, gave us rules that shall prove sound through all time.

So one sees, in looking back over the history of our guild, that after the banishing of privilege, and royal and priestly authority with their selfish pompous insistance and their tedious etiquette, there grew up gradually in the minds of thinking men a wiser appreciation of our purposes and a sound system of ethics.

Good ethics, then, is to be looked for among physicians who, following the teaching of Hippocrates and Aristotle, of Celsus and of Galen, maintain that he is the upright scientist who pursues his art by the light of sound reason; who draws his conclusions and guides his practice by deductions founded on accurate observation; who observes that clear inductive method which is older than history. Now, throughout its history one sees that medicine has never been regarded as an exact science. Hippocrates himself founded his pathology upon a hypothesis, which developed into that curious myth known to us as the humoral theory; and from his day to our own hypotheses have abounded. The master knot of human life and human fate held firm through the ages. The great mystery of life remained a mystery. Men strove, by theories and systems, to unravel it, and while they sought the unattainable through metaphysical means, they continued blind to the solution of the attainable. While they sought by specious arguments to explain the destiny of the soul, they overlooked the heart's part in the circulation, and the liver's function in producing bile. So schools arose out of little knowledge. The leaders of those schools were honest men, but having dim light and having builded upon the sand largely, their superstructures tottered betimes, and their wisdom became as vapor.

Through it all, though, and with the progress of time, one recognizes the gradual accumulation of facts. Solid surgical knowledge existed among the Egyptians, Jews and Greeks. Galen perceived something of the nature of the blood current and the function of nerves. The Arabians, Albucasis and Avicenna, and the schools of Medieval Italy gathered up the wisdom of the ages, until, with the revival of learning in the 15th

*An address at the annual dinner of the New Bedford Medical Society, Feb. 25, 1907.

and 16th centuries, there came a rush and an enthusiasm for science such as had been unknown for a millennium.

But among the best even of these young 15th century moderns, certain ancient prejudices survived. Though Vesalius placed anatomy again upon a sound basis, and made possible a sane physiology, he despised Paracelsus as a vain fool, and fell out with his own successor. The researches of Borelli and Malpighi and Harvey advanced our knowledge of digestion, and of the structure of organs, and of the course of the blood, but their very researches led these great souls to a contempt for chemistry and a vociferous decrying of those mysterious reactions, whose principles the early chemists themselves ascribed to unexplained and supernatural forces. So there were materialists on the one side and mystics on the other; while out of the two types of mind there grew up two great schools of medicine which divided scientists for generations, — the iatro-physicists and the iatro-chemists.

Such dissensions among the wise conduced little to the winning for physicians of popular confidence and respect; and the literature of generations abounds in sneers at the doctors and flings at their pretensions. Hudibras and Don Quixote set the pace, and those immortal works of Butler and Cervantes for centuries imposed a standard of scorn from which the writings of our own day are not exempt.

Such lack of comprehension and sympathy appears constantly throughout the medical history of the sixteenth, seventeenth and eighteenth centuries. Scientists had no common meeting ground or point of departure. They attacked from the circumference the great central problem of pathology; and while they worked laboriously and unwittingly towards a common center they bemired each other with bad language, and looked upon their rivals as knaves. Such were the scientists, — the few and lonely pioneers. But the great mass of practitioners were the satisfied and pompous conservatives who were content with tradition, with their own misapprehensions of Galen's teaching and with a monstrous therapeutics. While they upheld a dull and illiberal routine they hated bitterly the rare prophets of progress. So one sees two clearly-defined groups among our professional forbears — the routinists and the liberals; the routinists forming a great and strong conservative body, the liberals divided among themselves, despising conservatives and hating those of their enlightened fellows whose lines of thought diverged from their own. History abounds in tales of these ancient squabbles. Conservative Sylvius attacked Versalius because Versalius taught a new and correct anatomy. Gourmélen, dean of the Paris faculty, attacked Paré, because Paré taught a simplified treatment of wounds. The whole French Academy derided Harvey because Harvey demonstrated correctly the functions of the heart; and in the enlightened eighteenth century, even, Pott inveighed against Hunter's operation for aneurism, while Sir Joseph Banks, president of the Royal Society, after Hunter's death asserted that the great Hunterian collection was of little or no value to the subject of natural history. While such were the views of many conservative minds the conservatives, themselves, though agreeing in their general attitude of letting well enough alone, constantly were embroiled over matters of procedure and technical rights of practice. Barber surgeons encroached upon the field of surgeons, and surgeons encroached upon the preserves of physicians. Bone-setters proclaimed the ignorance of the faculty in general, and lithotomists attempted to show that they alone were competent to cut for stone.

Out of such a chaos of complacency and fever, smugness and contempt, ignorance and wisdom, perversity and enlightenment, backsliding and progress, men attempted in some fashion to apply the ethics of Hippocrates; but by their endeavors they succeeded in building up a thin system of etiquette only. With their limited knowledge and their lack of true comprehension they failed to perceive the common purpose which instigated all, — the purpose to mend and save human life and to advance their art. So ethics floundered and etiquette triumphed. One reads dreary accounts of dull formalities, of precedence, of bowing and wavings, of bed-side hemmings and hawings, of solemn groanings and fatuous consultings, of absurd stalkings; of prescribed costumes, of ruffles, wigs, shorts and canes; of offense easily given; of slander, of rival schools, and of pretension founded upon academic degrees and illustrated by preposterous doses and the activities of the undertaker.

Towards the end of the eighteenth century, the humoral theory declined; the iatro-physicists and the iatro-chemists kept up a feeble wrangle; on the continent of Europe a dozen diverse methods of practice sprang up and withered; in Scotland and England, Cullen preached an impossible new nosology; the Brunonian system imposed upon the credulous; and in our own America even, Rush was asserting the triumphs of his own system, that "consumption in its last stage is cured by bleedings; gout is torn from its ancient sanctuary; dropsy is cured; tetanus is prevented by inflaming the parts; madness has yielded to bleeding, low diet and mercury; and the last achievement of our science consists in the discovery and observation of the premonitory signs of mortal disease, and in subduing them by simple remedies in their forming state."[1]

We talk about ethics and etiquette and how they languish. In 1778, Hunter told his students that he'd be damned if he would meet a brother practitioner in consultation; he is said to have claimed a fee which should have gone to a consulting colleague, and he clamored for all the money paid into St. George's Hospital by student assistants, because he said the young men were attracted there by himself alone. Medical gentlemen of those times thought poorly of John Hunter's etiquette, though no one questioned

[1] Rush's Medical Inquiries and Observations, vol. 4, p. 393.

his ethics; but ethics were not understood then as we understand them now.

Behind it all, however, there was growing up in the eighteenth century a system founded upon the few and scattered sound teachings of earlier centuries; and an appreciation of science was coming to enlighten some of the better minds. John Locke understood science as we do. So perhaps did Sydenham and Boerhaave; so did Morgagni; so certainly did von Haller and John Hunter. These men disregarded schools. They were practical observers, physiologists, pathologists and surgeons; they looked for tangible proofs; they cared nothing for metaphysics and theories founded upon moonshine. Of them all Boerhaave and John Hunter affected especially American medicine in our early days, and Hunter's pupils, Physick, J. C. Warren and their like, taught their students on sound and liberal lines.

In the last year of our American Revolution, the Massachusetts Medical Society was founded, with its leading object the promotion of medical education, war against quackery, the stimulation of preventive medicine and the preservation of the public health. The annals of this famous society show that in the first fifty years of its existence it accomplished much on these lines of endeavor; that with the co-operation of Harvard College it did promote a higher grade of education; that its committees investigated and battled with serious and widespread epidemics, and that especially it had a keen scent for medical heresies of all sorts; that it strove vigorously to root them out and that its combat was unceasing. The development of homeopathy is one evidence of the chaos into which medical practice had drifted toward the end of the eighteenth century. As one examines it in the light of history, its early tenets seem but little more astounding than do those of the schools championed by Cullen, Brown or Rush. Doubtless the early successes of homeopathy were the more striking because its let-alone principles contrasted so violently with the heroic measures of its rivals.

With such a sketch before us of former conditions we can see why etiquette became the greatest good, and why true ethics failed of general comprehension. The warring schools of practice adopted their own rules and their own customs. Rival schools to them were anathema.

With the development of latter-day science, with the spread of a broad education, with the rise of special learning and with the demonstration of sound pathology and physiology as the central theme upon which rests our whole superstructure, it has resulted that ethics has come into its own, and that mere etiquette is but little regarded. Schools of practice no longer signify. Cullen, Brown and Rush are forgotten. In some distorted fashion Hahnemann is thought to survive as the prophet of a simplified therapeutics, though few of his modern followers accept his premises. The great and fundamental distinction between latter-day and former medicine is our present sound conception of pathology. Modern practice rests upon a pathology of which the principles are everywhere accepted. Ancient practice rested upon a cloud-bank of whimsies, regarding the nature of which no two men agreed. Such division as still persists among educated physicians concerns the details of a dwindling therapeutics. A better understanding of each other, a wider knowledge, a culture founded on travel and observation in many lands, surely are bringing together all groups of thoughtful men in our profession. Etiquette is no longer imposed; it is the accepted habit of good breeding among educated men of science. Good ethics remains and its meaning daily grows more apparent.

Let us hope that that Chauvinism, of which Osler complained, one day will pass from us. We are not yet perfect, however. Is it not worth while occasionally to return upon ourselves with the old question, Are we always and truly scientific in our modes of thought? Are we ready and willing, as were the early members of the Massachusetts Medical Society, to investigate with open mind new and strange things? Do we break through in season the shackles of convention? Or does tired cynicism sometimes prompt us to a denial of truths which seem evident to our more generous fellows?

Educated physicians are weary of old-time, meaningless terms applied to modern conditions. We hear still of *schools* of medicine, — the *old school, the new school, rival schools.* The educated man knows that the study and pursuit of science does not admit of schools. Doubtless, all methods of treatment and therapeutic activity allow many diseases to run their course with the recovery of the patient. Doubtless different therapeutic measures appeal especially to patients of different temperaments. Doubtless in a great many diseases, therapeutic ecentricity and voluble verbiage do no special harm. Such reflections are familiar to us all, and we recognize wearily the truths of psychic influence expressed by such conceptions. We know, however, that genuine organic disorders require for their cure something more than empty phrases and placebos, while the weariness engendered of serious responsibility renders us skeptical of the outcome of all disease. Men have groaned over homeopathy. Fifty years ago they despised Thompsonianism; they have sneered at spiritualism; they have distrusted mesmerism and mental healing; they have looked askance at hypnotism, and have questioned the value of psychotherapeutics as applied by responsible scientists of to-day — grouping indiscriminately the good and the bad. Our thoughts have been divided and our intelligence assaulted by such a multitude of semi-quackeries and propositions of pseudo-science that often we are unable to winnow the grain from the chaff. Such is the diversity of modern-day conditions. More than ever, therefore, is it incumbent upon us laboriously and faithfully to seek for truth; not to assume it without proof; not to throw it aside without investigation; to recognize always the significance of good ethics, and to divorce captious etiquette from the painstaking pursuit of a genuine and enlightened knowledge.

Original Articles.

THROMBOSIS OF THE CAVERNOUS SINUSES; WITH REPORT OF FOUR CASES.

REMARKS ON THE TOPOGRAPHY OF THE SINUS.

BY HENRY GLOVER LANGWORTHY, M.D., DUBUQUE, IOWA.

CASE I. Chronic purulent otitis media with mastoiditis, facial paralysis, thrombosis of the lateral sinus, internal jugular vein and both cavernous sinuses; pyemia and death.

On Feb. 3, 1905, there was admitted to the Massachusetts Charitable Eye and Ear Infirmary, on the service of Dr. Frederick L. Jack, a boy fourteen years of age.

Family history not obtained.

Past history. — Scarlet fever eight years ago, intermittent discharge from the right ear ever since.

Present illness. — Has had severe pain in the right ear for ten days with considerable increase in the amount of discharge. Duration of facial paralysis nine days.

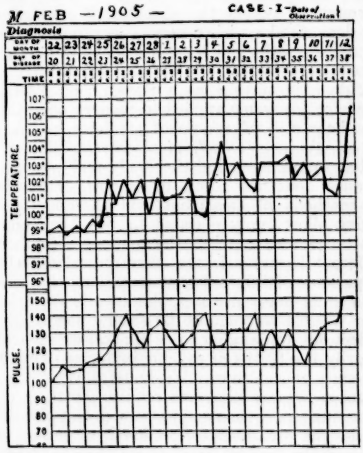


FIG. 1. Temperature chart (Case I). The first rise in temperature is very suggestive of beginning trouble in the nearest sinus.

Physical examination. — Fairly well developed and nourished. Prostration slight. Right ear, middle ear filled with many granulations. Probe passed through granulations into attic, encounters bare bone beyond. Swelling of the postero-superior canal wall. Mastoid tender. Right facial paralysis. Hearing tests, low spoken voice 5–35; Galton whistle normal; low limits 1024 S. V.

Feb. 4. — Radical mastoid operation by Dr. Walter A. Lecompte. Granulations and cholesteatomatous material scraped out. Small fistula found posterior to oval window leading into the facial canal. Panse flap and primary skin graft.

Feb. 25. — Radical cavity clean. Packed daily. Epidermatizing slowly. Temperature, previously normal, rose suddenly to 102° F. Patient complains of severe frontal and occipital headaches.

Feb. 26. — Frontal and occipital headaches still severe. Diarrhea and slight dizziness. External rectus muscle paralyzed. Pupils equal and react to light. Fundi examined by Dr. Edward K. Ellis and found negative. Packing removed from radical cavity and light wick substituted. Temperature 102° F. Knee jerks active and equal. No Kernig. Superficial reflexes normal.

Feb. 27. — Frontal headaches. Pupils dilated. Complete paralysis of sixth nerve, other ocular nerves not involved. No rigidity of neck. No ataxia of arms. Reflexes normal. Lumbar puncture by Dr. Lecompte and half an ounce of clear fluid withdrawn. Case seen by Drs. Walton and Waterman. Operation advised. Exploratory brain operation performed by Dr. Frederick L. Jack. Radical cavity reopened. Roof of middle ear and antrum removed. Dura discolored and bulging, incised. Probe passed through brain tissue in several directions but no pus found.

Feb. 28. — Frontal headaches persist. Two chills. Patient seen by Dr. Putnam who finds: "Abdominal reflexes lively. Knee jerks lost. Kernig both sides. Slight plantar reflex. No Babinski. Slight retraction of head and tenderness on pressure over cervical vertebræ."

March 1. — Cerebration active. Pain about both eyes. Exophthalmos of right eye. Tenderness and edema of cheek and neck on that side. White count, 39,000. Fundi normal.

March 2. — Exophthalmos of right eye increasing. Chemosis of lids. Swelling of cheek and neck more extensive. Cerebration slow.

March 6. — Ligation of right internal jugular vein by Dr. Mixter. Vein thrombosed. Lateral sinus opened and curetted by Dr. F. L. Jack.

March 8. — Periods of unconsciousness and delirium. Exophthalmos increasing. Choked disc. Retention of urine. Chills.

March 12. — Death took place from septic exhaustion.

Post mortem. — Original incision in neck elongated by Dr. George L. Tobey, Jr. Jugular vein excised as far as the bulb and found thrombosed. Petrous portion of the temporal bone removed. After removal of the bone, pus was seen to come from a point in the dura communicating with the cavernous sinus. Pressure on the eye ball evacuated some pus. Probe passed freely through the inferior petrosal sinus.

CASE II. Acute suppurative otitis media with extra-dural abscess, thrombosis of the lateral sinus, internal jugular vein and both cavernous sinuses; pyemia, death.

A. G., male, age three years, was admitted to the Massachusetts Charitable Eye and Ear Infirmary, July 13, 1905, on the service of Dr. Clarence John Blake.

Present illness. — Transferred from Children's Hospital, Boston, where patient had been dangerously ill with pneumonia. Discharge from the right ear eight days; left ear, five days. Paracentesis both drums. Said to have had three chills yesterday. No vomiting. No convulsions.

Examination. — Ears, marked redness and bulging of both membrana tympani. Purulent discharge. Mastoid tenderness on right. Paracentesis.

Feb. 14. — Temperature 101° F. Both middle ears discharging. Marked prostration. Slight edema of tissues anterior to right auricle.

Feb. 16. — Increasing exophthalmos of both eyes with chemosis of lids. Chills. No vomiting. Edema over right mastoid process and glandular swelling in neck. Profuse purulent discharge from middle ear. Right mastoid operation and ligation of the internal jugular vein by Dr. George L. Tobey, Jr. Cortex found perforated. Antrum and cells filled with pus.

Pus extended forward into zygoma. Lateral sinus and internal jugular vein found thrombosed. Two perforations discovered, one high up over the squamous portion and the other through the anterior bony canal wall.

Feb. 17. — Exophthalmos and chemosis of lids of both eyes marked. Beginning optic neuritis. Cornea slightly hazy. Media clear. Restless. Periods of unconsciousness. General condition growing rapidly worse. Profuse discharge from middle ear. Swelling and discoloration of skin about right elbow joint.

Feb. 19. — Death from sepsis. Autopsy refused.

Case III. Chronic suppurative otitis media with mastoiditis, bronchopneumonia, thrombosis of both cavernous sinuses; pyemia, death.

On April 27, 1906, there was admitted to the Massachusetts Charitable Eye and Ear Infirmary on the service of Dr. Philip Hammond, a boy, F. D., eight years of age.

Family history not obtained.

Past history. — Indefinite (state ward). Adenoids and tonsils removed by Dr. William Goodell on April 17. Rapid emaciation, cough with pain and discharge from left ear about one week. Swelling anterior to auricle four days.

Examination. — Left ear: membrana tympany reddened, thickened and bulging. Perforation lower anterior quadrant. Middle ear discharging. Perforation through anterior wall with foul smelling discharge. Swelling size of a walnut over zygoma and parotid gland. Tissues indurated below angle of jaw. Slight mastoid tenderness and edema. Rachitic. Lungs, no definite consolidation, sibilant râles over whole chest. Slight cyanosis. Temperature 104 8.° F. Respiration 32. Pulse 130. Abdomen negative.

April 29. — Anterior canal wall incised by Dr. Dana W. Drury, and two drams of pus evacuated. Throat negative. Sponge baths have reduced the temperature to 103° F.

April 30. — Temperature 105 8.° F. Pulse rapid and weak. Chills and vomiting. Delirious. Swelling has extended forward involving the whole left side of the face. Exophthalmos and chemosis of lids of left eye.

Mastoid operation by Dr. D. Harold Walker, of Boston. Antrum opened and found filled with pus and granulations. Tegmen antri carious but no distinct perforation. Second incision made in front of left auricle parallel to temporal artery. Considerable amount of pus under zygoma and masseter muscle, evacuated.

May 1. — Frontal pain and headache. Stupid. Exophthalmos and chemosis of lids marked. Kernig's sign positive. Temperature 105.4° F.

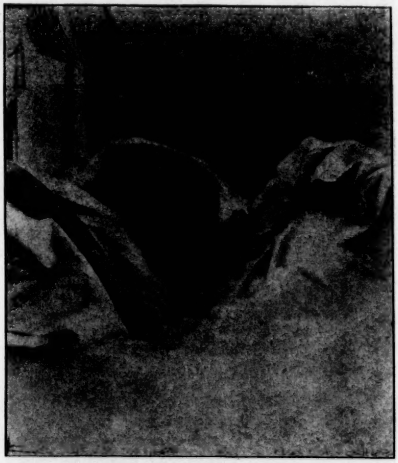
May 2. — Exophthalmos and great chemosis of lids of left eye. Swelling of corresponding side of face and neck. Delirious. Knee jerks increased. Involuntary movements and epileptiform attacks. Temperature 104° F.

May 3. — Exophthalmos and chemosis of lids of both eyes. Extremities cool. Stiffness of neck muscles. Unconscious. Temperature 105.5° F. Fundi negative.

May 4. — Pulse grew gradually weaker and death took place early this morning.

Autopsy. — (Dr. F. H. Verhoeff.) Head only. Marked rigor mortis and lividity of dependent parts. Eyelids of both eyes much swollen, more marked on right side, neither mastoid nor zygomatic wound enter cranial cavity. Pia-arachnoid congested and infiltrated with turbid fluid along the sulci. Cerebrospinal fluid not markedly turbid. Dura over petrous bone normal. Both cavernous sinuses thrombosed. Lateral and other sinuses free (petrosals not examined). Body and a part of the left wing of the sphenoid highly necrotic, green colored, soft and oozing pus. Sphenoidal sinuses filled with pus. Extending from the left cavernous sinus beneath the dura over the squamous to the petrous bone there is a mass of thick pus. Also over the site of the external incision in front of the auricle the dura is raised in the form of a small abscess. Evidently the purulent process had extended through the dura explaining the meningitis. The bone beneath the abscess is intact although showing two small emissary veins. On the temporal wall of the left orbit there is a thick layer of pus extending beneath the periosteum from the margin of the orbit, backward to the sphenoidal fissure. The bone along this tract of pus is necrotic. The orbital tissues contain no pus.

Bacteriology. — Smears from the subdural abscess show an abundance of Gram staining cocci, both in pairs and short chains. Many of them are degenerated and fail to take the stain. Cultures show a pure growth of pneumococci.



A. Cavernous sinus thrombosis of otitis origin early in the disease. Eye symptoms, chemosis of lids and exophthalmos, first appeared in the opposite eye. Photograph of a patient on the aural service of Dr. E. M. Plummer, Massachusetts Charitable Eye and Ear Infirmary, October, 1906.

Diagnosis. — Thrombosis of cavernous sinuses. Sub-dural abscess. Purulent meningitis. Empyema and necrosis of the sphenoid.

Case IV. Acute suppurative otitis media with mastoiditis, meningitis, thrombosis of lateral sinus, internal jugular vein and both cavernous sinuses; death.[1]

Boy, aged seven, admitted to the Massachusetts Charitable Eye and Ear Infirmary, Feb. 2, 1906, on the aural service of Dr. Philip Hammond.

Past history. — Diphtheria two years ago. No previous ear trouble.

Present illness. — Five days ago said to have had an attack of severe pain in right ear followed by slight mastoid tenderness and swelling. Otorrhea one day.

Examination. — Well developed and nourished. Marked prostration. Unconscious. Pupils pin point and react sluggishly to light. Neck muscles stiff but no retraction of head. Temperature 105° F.

Right ear. — Membrana tympani reddened, thick-

[1] This case referred to in the *Laryngoscope*, July, 1906. A Proposed Measure for Thrombosis of the Cavernous Sinus.

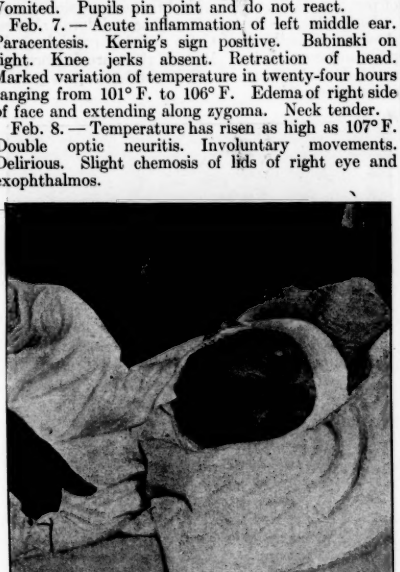
ened and bulging. Small perforation lower anterior quadrant. Edema postero-superior canal wall. Middle ear discharging. Edema over mastoid. Slight protrusion of auricle from side of head. Mastoid operation by Dr. Philip Hammond. Antrum found filled with pus and granulations. Small area of normal dura uncovered. Lateral sinus exposed. Drum incised. Culture showed streptococci.

Feb. 4. — Pupils pin point and do not react to light. Knee jerks absent. Delirium. Mastoid wound clean. Profuse purulent discharge from middle ear.

Feb. 6. — Unconscious. Slight retraction of head. Vomited. Pupils pin point and do not react.

Feb. 7. — Acute inflammation of left middle ear. Paracentesis. Kernig's sign positive. Babinski on right. Knee jerks absent. Retraction of head. Marked variation of temperature in twenty-four hours ranging from 101° F. to 106° F. Edema of right side of face and extending along zygoma. Neck tender.

Feb. 8. — Temperature has risen as high as 107° F. Double optic neuritis. Involuntary movements. Delirious. Slight chemosis of lids of right eye and exophthalmos.



B. Same patient two days before death. Exophthalmos and chemosis of lids marked in both eyes.

Feb. 10. — Exophthalmos and chemosis of lids of both eyes, alternating. Pupils pin point and do not react to light. Difficulty in swallowing. Epileptiform attacks. Chills. Operation for cavernous sinus thrombosis considered but finally abandoned.[2]

Feb. 11. —Death from sepsis.

In Case I, the whole duration of the disease was thirty-eight days, the cavernous sinus thrombosis, twelve days. Pain about the eyes and severe headaches were noticed four days before the exophthalmos. The cause of the partly unilateral headaches and pains over the forehead may have been in some way due to pressure on the first branch of the trifacial. The prominent symptoms in order of their occurrence may be grouped as follows: known mastoid focus, pain about the eyes, headaches, slight paralyses of a nerve within the sinus, chemosis of lids, exophthalmos, edema of face and neck on the same side, double optic neuritis, pyemia and death. In this case death took place before the second eye became involved, unusual in cases of otitic origin. The nerve paralyzed was the sixth (abducent) supplying the external rectus muscle. This nerve enters near the floor of the sinus, posteriorly passing to the outer side of the internal carotid artery where it is finally directed into the orbit through the sphenoidal fissure. Pressure on the nerve was sufficient to cause the convergent squint. The classical symptoms with which we are at present familiar are really nature's last efforts. Not until we have the most careful analysis of the very early symptoms can we expect to improve in diagnosis. In this work we are hindered not only by the fact that many of the cases may be in children, but also that the train of symptoms due to septicemia and pyemia often mask the disease. Occasionally in adults, cerebral symptoms are absent until within a few hours before death. Accustomed as we are to encounter marked disturbances in the central sensorium, this fact is often confusing. Even such characteristic features of phlebitis as pyemic rigors may be wanting. Ptosis (oculomotor) cannot be relied upon. So many factors enter into the causation of symptoms that even the cases reported are most unsatisfactory. The prognosis is absolutely bad. Our only hope of recovery is in operation and as early as possible. The moment the diagnosis seems clear the sinus should be opened and drained. It is not so much the inaccessibility of the sinus which baffles us as the fact that even if the sinus be opened and drained successfully the cases are so septic that small hope can be held out for recovery. The responsibility of the surgeon is great. Even if the relatives of the patient are willing to have anything done which may offer the remotest chance one is still inclined to be wisely conservative.

In Case II, the duration of illness was fourteen days, the cavernous sinus thrombosis five days. Exophthalmos of the second eye was noticed within twenty-four hours from that of the first. The diagnosis with the known mastoid focus was unmistakable. The thrombosis extended into both cavernous sinuses very quickly, with metastatic abscesses in distant parts. It is remarkable how soon the lungs become the seat of purulent infarcts. An operation for draining the cavernous sinus was not considered because of intense sepsis and the poor condition of the patient on the operating table. It is almost impossible to form an opinion of the value of attempted operation

[2] Cases II and IV. The route considered was as follows: *Operation.* After elongating the usual frontal incision downward along the nasal bone and retracting the eye out of the field, the inner wall of the orbit is removed over a considerable area together with the nasal bone on that side. The entire structures within the nasal fossa-ethmoid, labyrinth and turbinates are then curetted out. This at once brings one down on the anterior surface of the body of the sphenoid with the opening of the sphenoidal sinus in plain view. The anterior wall of the sphenoidal sinus is next to follow and also a portion of the roof and lateral wall upon which rests the cavernous sinus. From this point one can do considerable on the cadaver with a prick of the knife and a properly curved blunt dissector. If unsuccessful in opening the cavernous sinus, the external wound is easily closed, the eye remains uninjured and nothing is lost by the attempt.

If the patient lives, the after-treatment with the nasal structures wanting would be no more difficult than dressing an open thrombosed lateral sinus in the depth of the temporal bone. The Laryngoscope, July, 1906.

in a case of this kind. From the first, the patient was extremely sick.

In Case III the duration of illness was fifteen days, of sinus symptoms, five days. The fundi were negative and media clear.[3] Early diagnosis was impossible. Operative interference in this case, while worth considering, would hardly have warranted any serious attempt. Of course, one may be wrong in deciding that any particular case is inoperable, for time, as Cicero tells us, often overthrows the opinions of men. The clinical and surgical standpoint, however, surely deserves as much if not more weight than the purely experimental side. One is always inclined to be skeptical when imperfectly known data are classified under any broad or general theory.

In Case IV, the duration of illness was fourteen days, of cavernous sinus symptoms, four days. There was exophthalmos of both eyes becoming less just before death. One of the most hopeful signs in these cases, indicating that recovery might ensue if the sinus could be drained, is periods of temporary general improvement. The operation of opening the cavernous sinus through the inner wall of the orbit and roof or lateral wall of the sphenoidal cavity, as suggested by the writer who had charge of the case, was considered at length, but finally abandoned. The most difficult problem which confronts the surgeon lies in making a positive diagnosis as soon as one eye shows the characteristic symptoms. Should he wait until the second eye becomes involved, clinching the diagnosis, so to speak, where there can be little hope in operation or, accepting the small percentage of error, operate at once? The answer can only be found in the individual condition of the case, the number of days already elapsed pointing to thrombosis of the cavernous sinus, willingness on the part of the relatives to take the chance which lies in operation and, finally, a trust in the future resistance of the patient to overcome the intense toxemia.

"The incessant progress of surgery, sanctioned by almost unhoped-for success, has very greatly increased the indication for operation in imperative surgery. Certain cases, which only a few years ago would have seemed hopeless, are to-day operated upon, and the wonderful results obtained show that the interference was justified. It is not, unfortunately, always thus, and all human power has its limits. There are patients who, when seen by the surgeon, represent organisms which are ruined and where all science loses its rights. The question of interfering in these cases is a difficult problem to solve."[4]

Historical note. As pointed out by Dwight-Germain, it has apparently been taken for granted by most authors that the cavernous sinus was hardly available for surgical interference on account of the supposed inaccessibility of the region. With few exceptions all agreed that the only justifiable operation was either an incision into the orbit in the hopes of striking a communicating pus pocket, or a simple enucleation of the globe itself. Others concluded, as did Macewen,[5] who has given us by far the best monograph on the subject, that in any view the cases are beyond surgical treatment. Finlay[6] remarks, "One can scarcely seriously contemplate reaching the local lesion through the orbit or by means of a craniectomy." Gaillard[7] was one of several to believe that "the treatment is entirely preventive." In cases in which the cavernous sinus had become involved by extension along the petrosals from a thrombosed lateral sinus, attempts had been made to drain all the sinuses at the base of the brain by opening and curetting the lateral, securing free bleeding. Three cases of recovery are recorded following this operation. One case of extension from the middle ear is reported by Cohen-Tervert[8] in which the middle fossa was opened and "several punctures made especially in the direction of the cavernous sinus," but without success. The Krause[9] method for intracranial resection of the trigeminus as the most feasible route has been the subject of much dispute. Robineau is reported to describe a method of operation on the cavernous sinus by doing a temporary resection of the malar and trephining the sphenoid. He says, however, that "this has never been tried as yet upon a living person."

Bircher[10] in 1893 reports opening the middle fossa by trephining and resecting the entire petrous pyramid with the exception of the inferior wall of the carotid canal, sectionizing of course the facial nerve. At the extremity of the pyramid he discovered a grayish place leaking fetid pus, apparently from the sinus. The patient recovered, but with extreme paralysis of the face and eyeball. Luc questions whether this was not an extradural abscess rather than a thrombosed sinus. Voss (de Riga) succeeded in incising the sinus by opening the middle fossa at the level of the base of the great wing of the sphenoid. He first sawed through the zygomatico-malar arch before doing the osteoplastic operation. The result was unfortunate as the patient died shortly from traumatic meningitis. In 1900, Dr. Herman Knapp[11] reports a case of aseptic thrombosis of the cavernous sinus with successful sinus operation by Dr. Hartley following the Gasserian ganglion (Hartley-Krause) route. An osteoplastic flap was made over the temporal region and reflected over the zygoma. The dura mater was then loosened from the squamous and petrous portions of the temporal bone sufficiently to recognize the second and third divisions of the fifth nerve. The cavernous sinus located, it was incised longitudinally as far as the sphe-

[3] Optic neuritis in thrombosis of the cranial sinuses; occurrence 30% in 26 cases. *Laryngoscope*, Jan., 1907.
The 26 cases presented included four of cavernous sinus thrombosis. The 4 cases are presented in detail in the present paper. Death took place in one of the 4 cases before any changes were observed in the fundi. A number of cases have been reported during the last few years without demonstrable ocular changes.

[4] Cumston, C. G.: The Frontiers of Death in Surgery and the Question of Operation in Extremis. *New York Med. Jour.*, July, 1906.

[5] Macewen: Pyogenic Diseases of the Brain and Spinal Cord.

[6] Finlay, C. E.: Ann. of Otol., vol. xxxii, p. 419.

[7] Gaillard: Nagel's Jahrb., 1874, p. 518.

[8] Cohn, B.: Klin. der Embolisch. Gefässkran, Berlin, 1860.

[9] Krause-Hartley: Method of Removal of the Gasserian Ganglion. Internat. Textbook of Surgery, vol. i, p. 866.

[10] Bircher: Centralbl. für Chir., 1893.

[11] Knapp, H: A Case of Traumatic at First Doubtful Orbital Sarcoma, followed by Aseptic Thrombosis of the Cavernous Sinus.

noidal fissure and the other sinuses investigated with a small probe. No hemorrhage took place at this time since the lumen of the sinus was occupied by a clot which completely filled it. The division of the third, fourth and opththalmic branch of the fifth nerve was not thought to be of moment since they had already shown evidences of paralysis. The patient lingered for over two months. In 1902 Dwight-Germain [12] report a similar operation performed Jan. 1, 1899, by Dr. Dwight for an acute septic thrombosis of the sinus. The patient was lightly etherized, head shaved and a horseshoe flap with its apex two and one half inches back of the outer canthus turned down. The dura opened, the temporal lobe was lifted backward and upward until the cavernous sinus was felt with the tip of the index finger of the left hand; a narrow bistoury with protected edges was then carried in along the finger and the cavernous sinus opened with an incision about one-half inch in length. This incision was followed by a rush of dark semi-clotted blood. The hemorrhage, however, was easily controlled by a strip of gauze. The patient died six and one-half hours after the operation. Krönlein in devising his operation (temporary resection of a wedge-shaped piece of the external bony orbital wall) for removal of retrobulbar growths, hoped that this operation might also drain some cases of thrombosis of the cavernous sinus by reaching the ophthalmic vein at the bottom of the orbit. With the appearance of a number of rhinological articles on empyema of the sphenoidal sinus and its treatment, it was remarked that curettement of either the external wall or roof of the sphenoidal cavity should be performed as lightly as possible owing to the great danger of opening the cavernous sinus or internal carotid artery. A direct application of this anatomical knowledge as an exit for a thrombosed cavernous sinus, however, was still lacking. In 1903, Cushing of Baltimore,[13] while extracting the Gasserian ganglion in a patient, accidentally opened the cavernous sinus which was followed by a well of venous blood spurting up into the wound. It was controlled by packing. One month later there suddenly occurred, without the patient being aware of it herself, a great protrusion of the left eye with edema of the lids and retinal hemorrhages. Evidently the long awaited thrombosis of the cavernous sinus had taken place and the pack for the first time could be removed with safety. A few days later the eye was enucleated. The patient made an uneventful recovery. Cushing adds that so far as he is aware the sequel of a cavernous sinus thrombosis has heretofore never been recorded, although many have believed that they have injured the vessel during this operation. The mechanical results of the stasis was the counterpart of that seen in the infective thrombosis, but without the serious clinical manifestations accompanying the latter condition. It is a rather curious coincidence that in 1905–6, Dr. H. Luc,[14] of Paris, and the writer should have begun a series of somewhat similar experiments on the cadaver in an attempt to work out the most reasonable and best method for attacking the vessel. My own observations have to date included six cases of septic thrombosis of the cavernous sinus, some of them autopsied. In one case of cavernous sinus thrombosis the method to be described was performed an hour after death. The first purely experimental dissections were, of course, limited to a few fresh cases in the autopsy room and on twelve half heads. Not a very extensive array, to be sure, but enough, I think, to draw some conclusions. I will first roughly mention the experiments of Luc, of which the original French text is given below.[15] He first proceeded by making a large opening through the anterior wall of the maxillary sinus on the same side as the cavernous sinus which he wished to open, and another smaller one into the nose to locate the anterior wall of the sphenoid. Using a straight chisel, however, he was unable to penetrate the lateral wall of the sphenoidal cavity on that side and so came to the conclusion that the cavernous sinus should be approached through the maxillary antrum on the opposite side of the head. This gave him the desired angle (oblique) and he was able to open the side of the sella turcica and penetrate the sinus without injuring the important structures. Grünert also seems to have had a clear idea of sometime opening the cavernous sinus through its relationship with the accessory sinuses of the face. My own operation, published some time ago, and also a modification of the same will presently be described. Ellett [16] believed that inasmuch as the prognosis is absolutely bad the operation as performed by Hartley should be tried.

[12] Dwight-Germain: Report of Four Cases. BOST. MED. AND SURG. JOUR., May, 1902.

[13] Cushing, H.: The Surgical Aspects of Major Neuralgia of the Trigeminal Nerve. A report of 20 cases. Jour. Am. Med. Asso., 1905.

MORBID ANATOMY.

Cavernous sinus thrombosis is usually secondary to lateral (sigmoid) thrombosis or affections of the ophthalmic veins. It is possible, however, from above from traumatic inflammations following the superior longitudinal sinus and cerebral veins and inferiorly by direct caries of the sphenoid bone. In ear disease it is commonly said to occur in one of three ways: (1) Sigmoid sinus thrombosis through intermediary of the petrosal sinuses. (2) Carotid plexus of veins surrounding the carotid artery by infection from the tympanic cavity. (3)

[14] Luc, H.: La Voie d'Accès Vers le Sinus Caverneux. Communication Faite au Congrès de la Société Française d'Otologie, de Laryngologie et de Rhinologie. Tenu à Paris du lundi, 8 mai au jeudi 11 mai, 1905.

[15] J'adoptai donc la voie maxillaire supérieure que j'avais, d'ailleurs, été l'un des premiers à utiliser comme méthode de cure radicale des suppurations de cette cavité. J'eus alors l'idée de renouveler ma tentative en abordant chaque sinus sphénoïdal par le sinus maxillaire du côté opposé, et bien m'en prit, car des lors je réussis, sur les deux mêmes cadavres et sur deux autres dont je disposai ultérieurement, à ouvrir le côté de la selle turcique et à pénétrer du même coup dans sinus caverneux. J'eus, en outre, la satisfaction de constatu que, conformément à mes prévisions, je n'avais lésé ni les troncs nerveux contnus dans la paroi externe de ce vaisseau, ni même le nerve de la sixième paire, ni surtout l'artère carotide qui traverse, comme, ou sait, l'intérieur du sinus veineux en question.

[16] Ellett, E. C.: Septic Thrombosis of the Cavernous Sinus. Report of three cases. Jour. Am. Med. Asso., May, 1904.

Involvement of the petrous cancellous cells, either from the cells on the inner wall of the tympanum or from the mastoid antrum.[17] Sometimes with perforations through the anterior bony canal wall or a line of suppurating cells far forward in the zygoma, the veins of the diploë passing inwards through the internal table and emptying into the superior petrosal may be the means of infection as observed in two of the cases presented.[18] The post-mortem picture varies slightly in accordance with the anatomical direction of the infection. Sometimes bone discoloration in the neighborhood of the sinus is absent. Almost always, however, the staining of bone is a prominent feature varying from livid green to black. The following two autopsies (Dwight-Germain) are most interesting. The first, spreading from a carbuncle on the back of the neck, showed a softened thrombus of left lateral sinus, petrosal and both cavernous sinuses.

All small sinuses around pituitary body were enlarged and filled with pus. Pressure on the eyeball caused pus to be forced out of the orbit, apparently along the track of the ophthalmic veins. Abscess of both lungs; septicemia; infection with staphylococcus aureus. In the second case, arising from infection of the right frontal sinus, the post-mortem picture was as follows: Infection of frontal sinus with extension of inflammation into orbit and ethmoidal cells on right side. Septic thrombosis of both cavernous sinuses and circular sinuses. Bronchopneumonia. No meningitis. Other sinuses not affected. Culture, streptococci and a bacillus. In Jack's[19] case of cavernous sinus thrombosis following the grippe the autopsy (Verhoeff) showed: Pia-arachnoid congested, edematous, numerous foci of suppuration in the sulci on the sides and at the base of the brain. Cerebrospinal fluid turbid. Both cavernous sinuses distended with pus and their walls lined with thrombi. Circular sinus filled with purulent thrombus. Left superior and inferior petrosal and left sigmoid sinuses similarly affected. Right inferior petrosal sinus filled with pus which continues into a thrombus blocking the right jugular vein. The other sinuses are free. Frontal and ethmoidal cells normal. Sphenoidal cells filled with pus and surface of sphenoid bone covered with purulent exudate. Orbital tissue on right side edematous, but shows no suppuration. Orbital tissue of left eye contains pus in direct continuity with that in the left cavernous sinus. Cultures show only the staphylococcus pyogenesalbus. The autopsy revealed " an apparent direct connection between the sphenoidal suppuration and the sinus, a direct infection such as occurs in the lateral sinus from middle ear disease." Section of lung tissue demonstrated purulent foci throughout.

[17] Knapp, Arnold: Primary Cavernous Sinus Thrombosis Secondary to Osteomyelitis of the Petrous Pyramid. Arch. of Otol. Oct., 1906, p. 437.

[18] Langworthy, H. G.: Cavernous Sinus Thrombosis in Children Following Mastoid Inflammation. Laryngoscope, Oct., 1906.

[19] Jack, E. E.: A Case of Cavernous Sinus Thrombosis Following Grippe. Autopsy by F. H. Verhoeff. Arch. of Ophthal., 1902, p. 545.

Jackson[20] reports a case of thrombosis of the cavernous sinus in a patient suffering from pulmonary tuberculosis. The cerebral meninges showed miliary tubercules scattered over both hemispheres, but none at the base of the brain. In the right cavernous sinus was an organized clot, about one eighth of an inch in diameter, extending into it from the orbital vein. No retinal changes. Dr. Arnold Knapp reports a case of primary cavernous sinus thrombosis secondary to osteomyelitis of the petrous pyramid. Autopsy as follows: Disintegrated but recent blood clot in the right sigmoid sinus becoming purulent as it approaches the bulb. Superior petrosal sinus normal. Dura over right cavernous sinus bulging and yellow; on opening this, a cavity filled with thick creamy pus is exposed. The left cavernous sinus also contained pus. Sphenoidal sinuses healthy. After removing dura from surface of petrous pyramid, a round, carious defect I cm. in diameter, in the bone was found at apex just underneath the Gasserian ganglion, anterior and internal to the internal auditory meatus. The meatus and its contents appeared healthy. Another defect was found along the

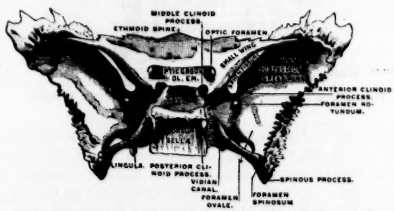


FIG. 2. The sphenoid bone, viewed from above. (Testut.)

superior petrous margin somewhere externally but communicating with the cavity at the apex of the petrous pyramid. The tympanum was filled with swollen mucous membrane. No fistula on inner wall. Antrum small and filled with granulations. The mastoid process is entirely infiltrated, though no actual cavities or disintegrations can be observed. The infiltration extends inward from the antrum just above the external semicircular canal throughout the cancellous tissue and communicates with the carious areas near the petrous apex described above.

One important fact can be deducted from most of the cases if the chest is opened, namely, that the lungs are involved early in the disease. This may not be demonstrable to objective examination, however, until quite late. Where the chemosis of lids and exophthalmos develop first in the opposite eye from the supposed infective source it may be due to extension of the process completely around the base of the skull.

If this cannot be proven at autopsy we assume that the infective material merely happened to lodge first in the cavernous sinus on the opposite side in the same manner that it might have found lodgment in any vein of the body.

[20] Jackson, E.: Arch. of Ophthal., p. 365, 1901.

REMARKS ON THE TOPOGRAPHY OF THE SINUS.

"The sinuses of the dura mater are venous channels formed by the separation of its endosteal and meningeal layer and are lined by a prolongation of the lining membrane of the veins. They are rigid tubes which always remain patent (Macewen); their function is to return the venous blood from the brain and its coverings, the diploë and also the greater part of the blood from the orbit and eyeball. They collect this blood and convey it to the jugular or posterior lacerated foramen where it is taken up by the internal jugular veins. The two cavernous sinuses are situated along the sides of the body of the sphenoid bone and extend from beneath the anterior clinoid processes to the apices of the petrous

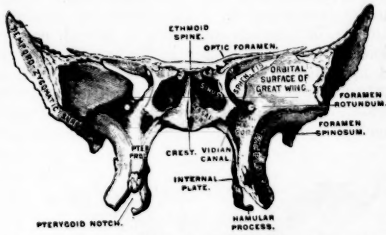


FIG. 3. The sphenoid bone, viewed from the front (Testut.)

portion of the temporal bones. The outer wall of the sinus, the most distinct, contains the third and fourth nerves and the ophthalmic division of the fifth, while the inner wall contains the internal carotid artery, the sixth nerve and the cavernous plexus of the sympathetic." (Deaver.[21]) Anteriorly they receive the ophthalmic veins, internally, communicate freely with each other by two and sometimes three smaller circular sinuses enclosing the pituitary body, and, posteriorly, terminate by dividing into the superior and inferior petrosals. They also receive veins from the inferior surface of the frontal lobes of the brain and some of the middle cerebral veins. Below they communicate with various venous plexuses in different parts of the neck. There is probably no other sinus within the cranial cavity which admits of so free and extensive a collateral circulation. The venous circulation around the body of the sphenoid presents the appearance of a circle within a circle. The purpose of the endothelial lining of the sinus is to prevent the blood from coming into contact with the nerves and artery. An idea of its considerable size may be had when it is understood that the internal carotid artery and sixth nerve pass through the sinus while the above mentioned nerves are contained in its outer wall. The shape of the sinus is like that of a prism, with the base generally in and tilted towards the median line. Sometimes in an anatomical specimen, showing irregular sphenoidal cavities projecting well laterally, the sinus is placed almost directly above one of them. While divided by fibrous bands (trabeculæ) into lacunar cavities there is always one large and distinct channel.

The cavernous sinuses are separated from the air in the sphenoidal sinus and external world by the thinnest of bony partitions. On one specimen an actual bony dehiscence was noted opening through the wall of the sphenoidal sinuses into the carotid canal. Evidently, during life, a layer of fibrous tissue only separated the carotid artery within the sinus at that point from a large sphenoidal cavity. It is exceedingly difficult to separate the delicate inner wall of the sinus as it is applied so closely to the bone. An opening made from below upwards cracking the bone is pretty sure at the same time to penetrate the sinus. On a white and well cleaned skull with the calvarium removed one can hold the specimen between one's eye and a bright light and if the normal sphenoidal opening is at all large, see an uninterrupted beam of light pass through the nasal fossa, sphenoidal opening, lighting up a small circle overlapping the region of the cavernous sinus just beyond. The Gasserian ganglion is in intimate relation with the cavernous sinuses and internal carotid artery, being lodged in a depression near the apex of the petrous bone. It is in Meckel's space between two layers of the dura mater. Every now and then one cavernous



FIG. 4. Area of bone comprising a portion of the inner orbital wall and nasal bone removed to secure a good opening into the nose. From this point one can punch out the middle turbinate and ethmoids, uncovering the anterior wall of the sphenoid. The eye is retracted from the field and remains uninjured.

sinus is found, either rudimentary or absent altogether, showing that a single sinus can, if need be, perform the work of both. A few weeks ago I had the pleasure of assisting Dr. H. H. Germain, of Boston, in tying the common carotid artery in one of those rare cases of sudden rupture of the internal carotid artery within the cavernous

[21] Deaver, J. B.: Surgical Anatomy, vol. i, 1901 ed.

sinus causing a pulsating exophthalmos. The patient, an adult over forty years of age, lingered nearly a month. At autopsy (Dr. F. H. Verhoeff) there was found normally a complete absence of the cavernous sinus on the side opposite the arterio-venus aneurysm.

In a footnote (page 536) a proposed orbitonasal route was described for reaching the cavernous sinus. (Fig. 4.) With an opening through either the roof or lateral wall of the sphenoidal cavity abundant drainage seould be secured. This also



FIG. 5. Curette with heavy handle and long tapering shank. The overhanging edge of the spoon assures a blunt non-cutting end when introduced into the nose. A mark 3 inches from the neck of the spoon is the distance allowable for a ½ inch penetration of the sinus. The instrument is weighted not unlike a dagger.

leaves the outline of the sphenoidal sinus for control of hemorrhage by packing. With a moderately large opening through the inner orbital wall into the nose one is working at all times in a good light. This gives the advantage of being able to work through both the orbit and nasal fossa at the same time. Approaching the cavernous sinus from below leaves the brain and coverings untouched. The chief danger is the internal carotid artery. Using a blunt instrument, however, to break into the sinus, the artery will not be injured. If one dreads a sudden and uncontrollable hemorrhage the common carotid can be tied before beginning ithe operation. A better plan would be to lay bare the common carotid sheath in the neck,

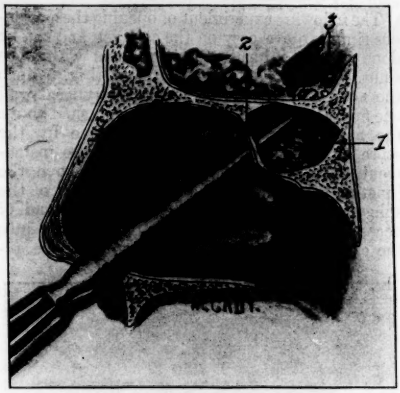


FIG. 6. Curette shown introduced into right nares and passed upward through the thin bony anterior wall and the roof of this sphenoid into the cavernous sinus region. The end of the curette is seen to protrude just beyond the roof.
1. Sphenoidal sinus.
2. Orifice of sphenoidal sinus.
3. Circular sinuses lying upon the roof of the sphenoidal sinus with the fossa for pituitary gland.

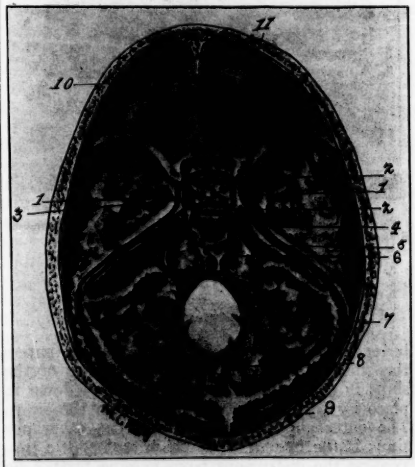


FIG. 7. Base of the skull (superior surface) showing the cranial sinuses.
1. Cavernous sinuses.
2. Circular sinuses.
3. Curette passed from the nose beyond the roof of the left sphenoidal cavity and perforating the cavernous sinus at its junction with the circular.
4. Superior petrosal sinus.
5. Inferior petrosal sinus.
6. Basilar plexus.
7. Lateral sinus.
8. Occipital sinus.
9. Torcular Herophili.
10. Crista galli.
11. Fossa for the pituitary body.
(a) Anterior fossa. (b) Middle fossa. (c) Posterior fossa.

pass a ligature around the vessel, but allowing it to remain untied. This provisional tourniquet could then be tightened at any time during the course of the operation if necessary.

The following experiment of opening the cavernous sinus is quite easy on the cadaver and can be done without injuring the structures within the sinus. Introducing the instrument (Fig. 5) into the nose as far posterior as the pharyngeal wall one finds the inferior surface of the sphenoid above the naso-pharynx. This can be done by the sense of touch alone. Withdrawing the instrument until the curette passes just above the junction of the anterior and inferior wall of the sphenoidal cavity, it is forced backward and of necessity upwards through the roof directly into the cavernous sinus at its junction with the anterior circular. (Fig. 6.) The curette enters the sinus as the thin endothelial lining of the sinus in contact with the bone is held down in place by the other structures within the sinus. The outer and superior wall of the cavernous sinus is the one which is thick and elastic, preventing the instrument from passing further on into the brain. The end of the curette can push this yielding wall of the sinus one-half inch without damage. With a finger at the mark on the shaft, the overhanging edge of the curette grasps the bone when the instrument is rotated. With this single instrument a hole of any size can be made. I was able to do this simple experiment on a patient dying of thrombosis of the cavernous sinus within an hour after death. Withdrawing my spoon, after opening the sinus, I found that it contained some pus. Removing the skull cap and brain and incising the cavernous from above the curette was found to have perforated the sinus exactly as outlined. With a portion of the floor wanting the pus within the thrombosed vessel was still slowly draining out of sight into the cavity below. (Fig. 7 and Fig. 8.) It actually seems possible to remove the middle turbinate and anterior wall of the sphenoidal cavity and, with a good head light, under cocaine, open the cavernous sinus under primary anesthesia. If it is thrombosed it would hardly be likely to bleed. Luc's method of approaching the cavernous through the maxillary antrum on the opposite side is an excellent one. The pus would drain either into the naso-pharynx or antrum. The latter could be kept open as long as desired. The advantages of an intranasal route over a craniectomy would be minimum of shock, comparative freedom from hemorrhage and accessibility of a possible after-treatment. I do not believe that merely opening the ophthalmic vein will be sufficient in all cases to drain the cavernous. To expect results one would be inclined to think that the sinus must be opened as freely as a lateral sinus and with a chance for permanent drainage.

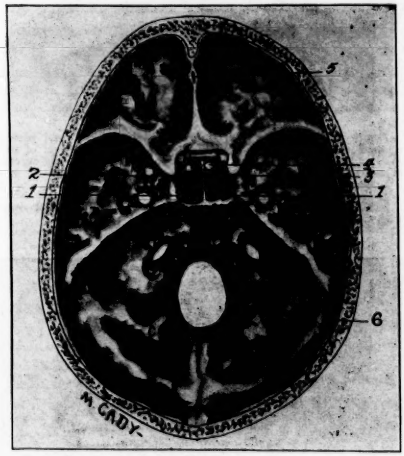


FIG. 8. Superior surface of base of skull. Roof of both sphenoidal sinuses removed.
1. Cavities of sphenoidal sinus seen from above.
2. Median bony partition.
3. Anterior wall of right sphenoidal sinus.
4. Opening of sphenoidal sinus into the nose.
5. Crista galli.
6. Groove for lateral sinus.
(a) Anterior fossa. (b) Middle fossa. (c) Posterior fossa.

It perhaps makes but little difference what method is selected as long as some attempt is made to drain the sinus directly. We can no longer, however, look for aid in speculation, but must patiently wait for the severer test of actual trial.

Luc: "La voie la plus directe et la meilleure pour la réalisation de ce but nous paraît être celle imaginée par Krönlein et que Voss, conseille d'adjoindre à son procédé opératoire dans les cas où l'infection caverneuse, au lieu de partir de l'oreille, tire son origine de l'orbite.

"D'après cette méthode, un incision courbe, à concavité postérieure, passant entre le bord externe de l'orbite et la commissure palpibrale externe, permet de rugines les deux faces (temporale et orbitaire) de la paroi externe de l'orbite, à sa partié la plus antérieure, puis de libéres celle-ci inférieurement au moyen d'une scie à chaîne passée à la partie antérieure de la feute pterygo-maxillaire et ressortant, en arrière, audessus de l'arcade zygomatique, toudis que la libération est réalisée supérieurement avec la gouge. Après quoi, le fragment osseux libéré étant laissé adhérent à la face profonde du lambeau musculocutané, en vue de sa remise en place ultérieure, le reste, c'est-à-dire la portion postérieure de la paroi externe de l'orbite, est réséqué de proche en proche, à coups de pince coupante, jusqu'au sommet de l'orbite, ou l'on atteint, la veine ophtalmique et la terminaison de ses principales bronches afférentes. Rien de plus simple ensuite que d'assures le drainage de ce foyer au moyen d'un gros drain plongeant au fond de l'orbite et que l'on fait ressortir par l'extrémité inférieure, laissée béaute, de l'incision cutanée, tandis que le reste en est suturé."

THE CAUSE OF A POSITIVE AGGLUTINATION REACTION IN ICTERUS.

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VERY soon after the introduction of the agglutination reaction as an aid in the diagnosis of typhoid fever, it was noticed in certain individuals, clinically not ill of typhoid fever, that their serum agglutinated typhoid bacilli. Cases with icterus, as first pointed out by Grünbaum, often give a positive agglutination with B. typhosus and S. choleræ Asiaticæ, though as a rule only in low dilutions. Their attention having been called to this fact numerous observers, as Köhler, Zupnik, Megele, Eckhardt, Joachim, Steinberg,

and others, investigated the agglutination reaction of the serum of icteric patients to B. typhosus. They found that very frequently the reaction was positive, though in many cases it was negative, and that there was no definite relation between the reaction and the degree of icterus. Different observers used different methods for determining the agglutination reaction and for quantitating their results. After making allowance for these differences, it is apparent that most cases give a positive reaction only in low dilutions and usually after long periods of observation (two to eight hours). Judged by the usual standards of the present time many of these cases would not be regarded as positive, and such reactions as they gave would not be accepted as any evidence in favor of the diagnosis of typhoid fever in a suspected case. Cases of this kind may then be neglected, since they present no difference from non-icteric cases, the serum of some of which in these low dilutions will agglutinate B. typhosus.

However, there remains a small group of cases with icterus whose serum possesses quite high agglutinative properties for the B. typhosus, and it is these which interest us and for which an explanation is desired. Such a case has recently been observed by me, and is here reported.[1]

A man of forty-two was admitted to the Massachusetts General Hospital on Nov. 6, 1906, with a history of typhoid fever seven years previously. Five weeks ago during the night the patient was awakened from sleep by severe pain in the right hypochondrium. There were frequent repetitions of these attacks, and the patient grew jaundiced, with clay-colored stools and very dark urine. Physical examination showed a deeply jaundiced man with marked tenderness, and slight rigidity and spasm in the region of the gall bladder. On Nov. 8, I tested his blood serum and found that it agglutinated B. typhosus with complete loss of motility in a dilution 1:50 in twenty minutes, and 1:100 in one hour; in a 1:150 dilution there was a partial reaction in one hour.

On Nov. 10 Dr. Harrington removed a stone from the common duct. The patient recovered from the immediate effects of this operation, and for a time did well, but then gradually failed and died Dec. 9.

On the day of the operation I was given a blood-stained swab from the common duct, a sterile test tube containing a small amount of slightly turbid, almost colorless fluid from the gall bladder, and the stone from the common duct, the latter in a sterile towel. The stone was 2 cm. in diameter, slightly irregular, semi-translucent, yellowish, crystalline, and not very hard. Cultures were made from these as follows: the swab was smeared over the surface of a blood serum slant, and incubated for forty-eight hours. This gave about 40 discrete colonies, 1 to 2 mm. in diameter, round, white, slightly elevated. Some of the fluid from the gall bladder was poured over the surface of an agar slant, and yielded, after forty-eight hours, 3 colonies, each about 3 mm. in diameter, yellowish white, semi-translucent. The gallstone was placed with sterile forceps in a flask of sterilized water and thoroughly shaken. It was then removed to a sterile towel and split with a sterile knife, the knife being forced to a depth of less than ½ the diameter of the stone, and then twisted so as to split the stone without touching its center. With a second sterile knife particles were picked from the center of the stone and added to 3 tubes of bouillon. After twenty-four hours' incubation each tube showed a diffuse cloudiness caused by actively motile rod-shaped organisms of varying length. Microscopical examination of organisms from all of the above tubes showed rod-shaped Gram decolorizing bacteria of somewhat varying length, the average being fairly long.

Agar plates made from the bouillon tubes showed a pure culture of bacteria growing as already described for the solid media. Further tested, these bacteria grew readily on blood serum and agar without changing the media, did not liquefy gelatin, produced no gas in either 1% glucose or lactose, and caused no change in litmus milk, either, acidification or coagulation, even after fourteen days. The milk did not coagulate on boiling. On the Conradi-Drigalski medium, kindly furnished me by Mr. Long, of the fourth-year class, the organisms grew as small bluish colonies with no acidification of the medium. From these characteristics the organism was diagnosed as B. typhosus. Tested with the serum of two typhoid cases then in the wards it was agglutinated in the same dilutions as the laboratory stock culture of B. typhosus.

The serum of the patient tested on Nov. 28, still agglutinated both the organism isolated from his gallstone and the stock culture of B. typhosus, though in considerably lower dilution than before the operation. B. paratyphosus alpha and beta gave no clumps even in a dilution of 1:10 after one hour.

Autopsy of this case showed no typhoid lesions in the intestine. The gall bladder was contracted and its walls thickened. The bile ducts seemed normal, and there were no biliary calculi. The liver was rather small (1,245 gm.), dark brown in color and firm. In one kidney there was a blackish granular calculus about 2 cm. in diameter. Cultures made from the center of this calculus in the same way as from the biliary calculus yielded many colonies of B. pyocyaneus and a few of B. coli communis, but no B. typhosus. Cultures made at autopsy from the heart's blood and spleen were negative. Histologic examination of the liver showed no increase in interstitial tissue, and no cellular infiltration. About the central veins there was a slightly increased granular pigmentation of the liver cells, and here and there in the sinusoids were endothelial cells similarly pigmented. In a few biliary canaliculi were small casts of inspissated bile. Liver cells showed no abnormality of structure or arrangement.

[1] This case was investigated in the service of Dr. F. B. Harrington, Visiting Surgeon to the Massachusetts General Hospital, whose courtesy I acknowledge with thanks.

SUMMARY OF CASE.

Typhoid seven years before operation; cholelithiasis with deep jaundice; positive agglutination reaction of blood serum for B. typhosus; choledochotomy with removal of biliary calculus; isolation of B. typhosus from gallstone, gall bladder and common duct; death; autopsy, no lesions of typhoid fever.

A priori the positive agglutination in icteric cases might be explained either by the action of biliary substances dissolved in the serum, or by bacterio-agglutinins in some wise generated independently of the icterus. There is much evidence against the first hypothesis. Many cases, more deeply jaundiced than those giving agglutination reactions, do not agglutinate B. typhosus even in the lowest dilutions. This has been my experience as well as that of many others. Bile, and various bile constituents, either tested alone or added to normal serum, do not cause an agglutination. As to the latter point there has been some difference in the results obtained by various observers. A few claim that bile agglutinates, but most obtain negative results. Moreover, interpreted by the standard of agglutination with complete loss of motility in one hour in a dilution of 1:50, many of the former observers would have negative results. Another source of error has been pointed out by Vanema, who found that certain partial reactions with human bile were due to agglutination, not of typhoid bacilli added to the bile, but of bacteria previously present in the bile. Taking these facts into consideration it appears that there is insufficient evidence that biliary constituents are in any way responsible for a positive agglutination reaction in icteric cases, and we must seek elsewhere an explanation.

An examination of the clinical history of reported cases of icterus with agglutination values as high as 1:50 in thirty minutes by the microscopic method shows that they may be divided into several classes: (*a*) Those that give a history of an attack of typhoid fever at some time prior to the development of jaundice; (*b*) those in which, with or without a previous history of typhoid fever, typhoid bacilli are found present in the biliary tract; (*c*) those in which there is an acute infectious jaundice, and (*d*) those not of the acute infectious type, which give no history of a previous attack of typhoid fever, and in which the presence of B. typhosus is not demonstrated.

It is known that the agglutination reaction of blood serum is retained for some time after typhoid fever, and under these conditions a positive agglutination during an attack of jaundice is easily understood. When the typhoid fever much antedates the jaundice, it is fair to assume a persistence of typhoid organisms. We know that this often happens, and the bacilli may persist for a very long time as in a case reported by Droba, where, seventeen years after typhoid, B. typhosus was isolated from both gall bladder and gallstone. In this way we may explain the reaction in such cases without overstepping the bounds of probability. Steinberg gives cases of this type; one of carcinoma of the gall bladder with typhoid two years previously, agglutinated B. typhosus 1:640 (the values used by Steinberg refer to the maximum dilution at which any agglutination occurs during two hours at 37° C.); another of cholelithiasis or tumor with a history of typhoid thirty years before agglutinated 1:160. Gilbert and Lereboullet give a case of biliary cirrhosis in which there was typhoid twelve years before, and a positive agglutination 1:100, while Gilbert and Lippmann, out of 30 cases of icterus, find 4 with positive agglutination for B. typhosus, in a dilution of 1:25, two of which had had typhoid fever and a third may have been a typhoid infection.

Of group (*b*) several cases have been reported. Blumenthal, in a cholelithiasis case with absolutely no history of typhoid, fever and no evident exposure to typhoid, found an agglutination value of 1:2500, and from pus in the gall bladder obtained a pure culture of B. typhosus. Libman, in a similar case, with no history of previous typhoid, obtained agglutination in a dilution 1:50, and B. typhosus was present in the gall bladder, In a second case with typhoid twelve years before. Libman found an agglutination of 1:100, and isolated B. typhosus from the gall bladder. My case here reported comes in this group.

Group (*c*) includes cases such as Weil's disease, and some others which might be regarded as atypical typhoid. Eckhardt studied a case of Weil's disease with an agglutination for B. typhosus of 1:100 in fifteen minutes, and a second convalescent case which agglutinated 1:100 in forty-five minutes. Cases of Weil's disease are believed by many to be due to infection with organisms of the proteus or colon group. With these, if previous typhoid or the presence of typhoid bacilli are excluded, it is possible that we may be dealing with group agglutinations such as we observe often in immunizing animals, where with a high agglutination for a given organism, lower yet considerable agglutinative values are obtained for related organisms. However, Abeles denies the possibility of a group agglutination of typhoid bacilli from proteus infections, and considers a positive reaction in these cases the result of the presence of typhoid bacilli at the time or at some earlier period.

Finally group (*d*) forms a residual class in which a few cases must be placed. They include those which, without history of typhoid like Blumenthal's case, may harbor typhoid bacilli, but of which fact there is no proof, or the agglutination may be the result of the effect of some allied organism (group agglutination). This group, for which we can offer only the above tentative explanation, however, is a small one.

As there is insufficient evidence then that the presence of bile in the blood serum is a cause of the agglutination of typhoid bacilli, and as the majority of icteric cases which give positive agglutinations have a history of previous typhoid, or are known to harbor typhoid organisms, the con-

clusion seems justified that in most cases of icterus which give a positive agglutination reaction with B. typhosus, the reaction is due to the presence of bacterio-agglutinins formed by the action of B. typhosus and is entirely independent of the presence of bile constituents in the circulating blood. In other cases in which the facts cannot be proven, typhoid bacilli may still be present and causative, or in their absence, the explanation may lie in the existence of group agglutination.

The reason for the frequent association of icterus and the presence of agglutination for typhoid organisms is to be sought in the etiological relation between cholelithiasis or cholecystitis and bacterial infection of the gall bladder. The presence of typhoid bacilli in the relatively large gallstone of our case is of interest in this connection. Pratt, Milian, Hanot and others have isolated typhoid bacilli from small gallstones during or shortly after typhoid fever. Funke in a bacteriologic study of 102 biliary calculi isolated B. typhosus once, and other organisms frequently. The presence of colon bacilli is not uncommon, and bacillus paratyphosus has been isolated occasionally. (Blumenthal.) These facts further support the view here expressed as to the cause of a positive agglutination reaction in icterus, a view concurred in by Blumenthal, Stern, and others.

Conclusions. — 1. There is insufficient evidence for the hypothesis that biliary constituents in the blood serum are the cause of the positive agglutination of B. typhosus in icteric cases.

2. The hypothesis that in most cases the reaction is due to the presence of bacterio-agglutinins generated independently of the icterus, is supported by a consideration of the available cases.

3. These bacterio-agglutinins may result from a previous attack of typhoid fever, from the presence of typhoid bacilli in some way related to the biliary disturbance, or possibly from closely related bacteria causing a group agglutination reaction.

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According to the *Medical Record*, Prof. William Keen, of Philadelphia, a delegate to the German Surgical Congress in Berlin, has been elected an honorary member of the German Surgical Society, and was one of five delegates received at a special audience by the German Empress.

A PLEA FOR CONSERVATISM IN GYNECOLOGY.*

BY GEO. W. KAAN, M.D., BOSTON,

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Most of the articles appearing in the medical journals respecting gynecology relate to surgical methods, to some operative means of relief; and this has been so prominently before the profession that the general practitioner has been led to consider gynecology as a branch of surgery only. Indeed, this has been publicly stated as a fact, by consulting physicians and surgeons connected with hospitals, and teaching in the medical schools. The result has been that an adequate teaching of this branch of medicine has been neglected, and the young graduate from some schools and hospitals is not prepared, as he should be, to take care of cases which will constitute more than half his practice. The time given to the practical teaching of gynecology is wholly insufficient, and I believe you will agree with me that you would be dissatisfied to have your women relatives treated for local conditions by the recent graduate or the average general practitioner.

In some otherwise good schools, the clinical instruction in diagnosis, upon which the treatment depends, and upon which rests the woman's health and happiness, is made a matter of a few hours in a section of four or even more students. It is painfully evident that later, when in practice, the diagnoses made upon the basis of such instruction are proven often to be erroneous and insufficient, and the treatment injudicious.

When conservatism in gynecology is mentioned, it is usually in connection with some surgical measure, as resection in place of extirpation of ovaries and tubes, or supravaginal amputation of the fundus in place of complete hysterectomy; but what I wish to call to your attention is the conservative diagnosis and prognosis, and treatment other than surgical; and what can be done to benefit the patient when she declines surgical intervention, as she has a right to do in so many cases. It is also the right of the patient to demand and expect the best kind and method of treatment to help her avoid the operation. Is it possible for her to get such treatment from those who consider gynecology as simply surgery, and who fail to appreciate that the whole organism of a woman is closely related to her function of procreation, and the organs connected therewith? It sometimes seems that we have hardly begun to understand the diseases of women. The functions of the ovaries as furnishing a secretion affecting the whole system has only recently come into prominence. It has been shown that with each menstruation there is a menstrual wave which reaches its climax just before the flow. Investigations made by Mandl and Bürger, of Vienna, with normal women, those with uterus and ovaries removed, those with ovaries only removed and with uterus remaining, show that just before the menstrual flow in normal women,

* Read before the Clinical Club, Jan. 18, 1907.

and those with ovaries remaining, there is an increase in the pulse rate, the blood pressure, the muscular tonicity, and a rise in temperature,— all of which come to a climax just before the flow, and drop suddenly as the flow is established. In the cases where the ovaries have been removed and where the menopause has been established, these phenomena are lacking.

On Aug. 17, 1902, I was called to Lowell to see a case confined five weeks before. For the three days before I saw her, the evening temperature had been 104°, and I was told to come prepared to operate. Examination showed no tenderness over the abdomen even upon deep pressure, the uterus was in good position and well involuted. No operation was attempted as there were no indications for one. The 17th and the 18th the temperature was again 104° P.M. On Aug. 19, the temperature in the morning was normal, menstruation was free and the patient practically well.

Here is the chart of a patient from whom I took a fibroid tumor as large as the fist from the interior of the uterus. You will notice that eleven days after the operation there was a sudden rise in temperature to almost 102° and the pulse beats increased from about 80 to 100; this continued for two days and dropped to normal when the menstruation began.

Furthermore, there are known to be reflexes from the sexual organs affecting the stomach and intestines. The vomiting of pregnancy is an example, and there are others.

The physiology of the sexual organism is not well known; with some women there is a noticeable swelling of the mammary glands just before menstruation; others develop a general nervous condition if their menses are delayed, and this wholly apart from any apprehension of pregnancy.

It can often be demonstrated physically that about a week before menstruation appears, one ovary will be found enlarged two or three times the usual size; and this is found normal in size again after the flow. Such an ovary, of course, should not be removed, and yet it probably has been.

I have a patient who feels sure she menstruates one month from one side and the next month from the other.

You are aware that the subjective symptoms in gynecology are of little more value than to direct attention to the pelvic organs. The diagnosis depends upon a local examination. Here is where conservatism begins,— a conservative interpretation of what is found on local examination, supplemented by a knowledge of what can probably be done by local treatment, and by operation. Let me illustrate.

A young married woman, the wife of a physician, had what the attending physician called a ruptured tubal pregnancy. For some reason there was a change of physicians, and the new one asked me to see the case. The uterus was held back in the second degree with thickening on both sides, especially on the right. The main question, of course, was one of operation; the patient had improved in the past three days, there was no indication for urgent measures, and it was decided to wait. I confess that I was very anxious until her next menstruation came around. About fifteen months later she had a normal confinement. At the time of my receiving the report from her husband she was on the way to a second confinement. Had an operation been done at the time I first saw her, I feel sure that the condition of the internal organs was such that one or both ovaries and tubes would have been sacrificed, and the chances of her having children diminished or perhaps destroyed. While the two cases are not similar, I always compare this one in my mind with another young woman I saw in consultation. She had an actively inflamed left tube and ovary. She recovered without an operation, but with treatment. A few years later I saw her again, but with another physician in charge. The local condition was worse than before; this time, it was a lighting up of a chronic inflammation of both sides, so that the organs were fixed high in the pelvis. She could not be taken care of at home and was, therefore, sent to one of our large hospitals where gynecology is not recognized. She was operated upon at once, and died in three days. You may say that she should have had some operation after her first attack had subsided; however that may be, I feel that when I last saw her, the proper immediate treatment did not include an operation.

I have under my care two physicians, the one had a retroverted uterus with prolapsed ovaries; the other a uterus drawn by adhesions to the left and posterior. Both had treatment and are wearing pessaries in preference to operations. Both feel perfectly well, and are able to walk five miles and more at a time without difficulty. They do not object to having the pessaries taken out and replaced every two months. Why should they undergo a dangerous operation, and perhaps not come out as well? Neither you nor I nor any operator can honestly tell them just how an operation will result.

About a year ago, I saw a nurse from the Adams Nervine Asylum, twenty-six years of age. She had been running down for five months and had some local symptoms. The uterus was in position, the sides tender. She had been having local treatment in the *dorsal* position by another physician, but without success, and an operation was suggested by him to which she objected. Treatment in the *Sims' position* with attention to her manner of living cured her in a month.

The teaching of gynecology has been so distinctly surgical and operative for years, it is not strange that some older conservative methods have been neglected. Then, too, it is not so easy, as it is in clinics of other branches, to get a chance to do the work and gain knowledge. It takes time, more than a few months, to get an understanding of how to give treatment, what may be expected from treatment, and in what cases so-called local treatment is useless. The statement that local treatment tends to produce

eroticism in the patient is not true. It is the fault of the physician, or of his treatment, if this should happen. In the case of young girls, treatment is to be avoided so far as possible; but with women over twenty-four or five and with married women, it is different. The attendance of a nurse is not essential. Good treatment can be given without a nurse, provided as much pains is taken in gaining the technic as is required in other special work. If the physician dislikes this branch of medicine as many do, or, with limited experience, has no faith in what can be accomplished, then the patient is bound to feel it and become discouraged, finally giving up all treatment, or resorting to operation.

Whoever speaks in disparagement of local conservative treatment displays a lack of knowledge of the subject. His opinion is derived from those surgeons whose experience is from operations only and whose final results are not clearly and properly understood. That a patient survives an operation, does not necessarily mean that a cure has been established better than would have resulted from good local treatment.

Boldt, of New York, a professor of gynecology, and a gynecologist at different hospitals says, "I do not coincide with those of my *confrères* who look upon gynecology only from a surgical side." However, we do not need to be told this. You and I know that the surgical side has failed in too many cases; failed not only by not curing the patient, but dismally failed by actually making her worse. The foundation of the failure is the error in diagnosis; the failure to find and understand the underlying pathological condition. I have in mind a patient who for ten years had suffered with pelvic pain, so that her nervous system gave way, and she was in tears, more or less, every day. The trouble, which had been overlooked by others, was located in the cervix which did not look badly itself, but had a tear involving the lateral cul-de-sac of the vagina. The cicatrix here held the cervix to the lower part of the broad ligament. Whenever she was on her feet the weight of the uterus and pressure above it bore directly on this cicatrix and the constant pain gradually wore her out. The patient declined operation; but was made practically well by tampons, and then a pessary to take the pressure away from the cicatricial tissue. This is only one of a number of similar cases.

The method of treating patients in the dorsal position and through a bivalve speculum is deplorable. Within a few days I have seen a woman with varicose veins of the broad ligament. She had been treated at a dispensary (and by the way, this dispensary is not the only place where patients are treated on the back) through a bivalve speculum. She has some erosion of the cervix and this was always irritated by the edges of the speculum blades as they were opened; so that she had more pain (and less relief) from treatment there at the dispensary than from the examinations of myself and assistant and two students, and treatment on the side. Treatment, as a rule, should be with patient in the Sims, or knee chest position. As the posterior vaginal wall is retracted by the Sims speculum, the sensitive inflamed tissues gravitate toward the abdominal cavity and away from the instrument. Applications can be made and dressings applied through the open vaginal canal with the patient on the side and she is not hurt nor the inflammation made worse. This can be done without a nurse as I constantly demonstrate to my students. What more irrational than to push up a sensitive uterus and adnexa on the sharp blade of a speculum and then crowd a tampon under them?

The determination of the proper treatment for a woman depends not alone upon what is found by examination, but also a knowledge of her environment,—the kind of work she has to do, and the hours in which she does it; her method of living, as to fresh air and sunlight; her sleep; the action of her bowels and bladder; her relations with her husband and family. All these may need to be taken into account in deciding the best treatment for her local condition.

In this connection and in relation to retroversion of the uterus, I beg to refer to a report made by Andersch (Archiv. für Gynekologie, No. 65) upon the permanent results of the operative treatment of retroflexion and prolapse between April, 1896, and October, 1900, under Pfannenstiel, in Breslau. The results obtained by operation are not pertinent to this paper, but I will call your attention to the fact that in the Krankenhaus *public* clinic, 760 cases were treated by pessaries, and 304 by operation. In *private* practice 736 cases treated by pessaries and 24 by operation. Mark you, only 24 operations in 760 cases of private practice and yet Professor Pfannenstiel undoubtedly is as anxious to do the best for his patients as any surgeon here on this side. What makes the difference? Is it easier for some to perform an abdominal operation than to fit a pessary? The perfect operation for cases of retroversion has not yet been devised. Which treatment would you prefer for some one in whom you are interested?

My plea is for a better appreciation of the relation of the generative organs in the woman to other organs, and to her whole physical and nervous system, and to her health and happiness; and also for a better understanding of the deviations from the normal which are truly pathological conditions; so that the reason for, and object to be gained by surgical interference be clearly understood, and be a secondary resort when possible, and not always a primary resort; that "local treatment" be undertaken with more intelligence.

Mary Putnam Jacobi Fellowship. The Woman's Medical Association of New York has raised $25,000 to be used for a fellowship to bear the name of Dr. Mary Putnam Jacobi. The income of the fund will be used to pay the expenses of a woman medical student who wishes to study abroad.—*Jour. Am. Med. Asso.*

Clinical Department.

SUCCESSFUL REDUCTION OF DISLOCATION OF THE NECK, TWO CASES.

BY FRANK M. SHERMAN, M.D., WEST NEWTON, MASS.

DISLOCATION of the neck is, of course, serious when so considerable as to damage the cord. Much less serious when the cord is not pinched. If the dislocation is above the third cervical vertebra, there may be sudden death from cutting off the phrenic nerve. Below the third cervical vertebra the injury may be sufficient to cause more or less paralysis according to the amount of damage to the cord, or to the spinal nerves.

The dislocation may be bilateral or unilateral. It may be a subluxation and the articular processes still remain in contact at their edges, or it may be more complete, so that the articulating surface slips completely past its fellow and drops down in front of it.

Even this condition can occur without damage to the cord, and in this class should be placed the following case, which is reported because the writer believes that the diagnosis and the correct method of reduction, as shown by Walton, should be more widely known.[1]

CASE I. Mrs. P., seen Jan. 15, 1907, with Dr. C. A. Davenport, of Newton. Two days before patient lifted a kettle of water from the stove with the left hand, and while holding it, quickly turned the head toward the left. The sudden pain felt in the neck was so acute as to cause her to drop the kettle and she was then unable to turn the head.

The head was tilted to the right, the face turned toward the left. There had been some soreness in the back of the neck and considerable pain. The right sterno-cleido-mastoid was not contracted, but the muscles on the left side of the neck were all rather tense.

Under chloroform anesthesia the head was tilted backwards diagonally to the left, and then rotated to the right, there was a distinct click as the reduction took place.

On recovery from the anesthesia patient was able to move the head slowly and carefully in all directions. Considerable pain and tenderness persisted for some days, gradually lessening. No apparatus was applied, but she was kept in bed with caution as to movements.

CASE II. The second case was seen Feb. 19, 1907, with Dr. F. R. Stubbs, of Newton. The history was somewhat similar to that of Case I. Patient was carrying a heavy weight when the accident occurred.

Pain in the neck and left shoulder was severe, especially on attempting any motion. She could not sit up in bed without assistance. Head and body must be moved together. The face was turned and tilted somewhat to the right. This case was therefore an example of subluxation on the left, the articular processes being still in contact at their edges.

In Von Bergmann's "Handbuch der Practischen Chirurgie" cases of this kind are classified as those of distortion.

When relaxed under chloroform, the head was tilted diagonally backward to the right, and then rotated to the left. No click was heard, but now the head was freely movable in all directions.

[1] BOST. MED. AND SURG. JOUR., March 31, 1889, Dec. 7, 1893, Oct. 22, 1903.

The neck was painful and tender for a few weeks, then complete recovery.

The following quotations are from Walton:

"With regard to the position assumed by the head in these cases, let us suppose an articular process on the left has slipped over; the head will be rotated with the face to the right. If the articular process has slipped down into the notch the head will be tilted to the left, the face being still rotated to the right. If the articular process has become caught on the crest of the process below, the head will be tilted to the right as well as rotated to the right. The side on which dislocation has occurred can always be determined, therefore, by the direction of rotation; the question whether the articular process has slipped into the notch may be determined by the tilting of the head. In case bilateral dislocation has occurred, the head will be carried forward and tilted directly backward."

"*Diagnosis.* — The only conditions with which dislocation is likely to be confused are torticollis and vertebral disease (tubercular caries). In case of torticollis, assuming the head to be rotated to the right, and the head tilted to the left, these movements will have been produced by the sterno-mastoid muscle on the left which will therefore be contracted. If this position is assumed in unilateral dislocation, on the other hand, the left sterno-mastoid will be lax, but the right will be put more or less on the stretch. In cervical caries the history is the important diagnostic factor."

"If one attempts to carry any given rule into effect, I should suggest the following: Perform retrolateral flexion toward the side toward which the face is turned by the dislocation, then rotate back to place."

Reports of Societies.

NEW YORK PSYCHIATRICAL SOCIETY.

STATED MEETING, MARCH 6, 1907.

ALLAN MCLANE HAMILTON, M.D., in the chair.

DR. AUGUST HOCH read the paper of the evening, the subject being,

THE PSYCHOGENETIC FACTORS IN SOME PARANOIAC CONDITIONS, WITH SUGGESTIONS FOR PROPHYLAXIS AND TREATMENT.

Dr. Hoch pointed out that among the paranoiac states there were cases, and that they probably represented a large proportion, in which the psychogenesis could be clearly traced, when the facts of the cases were really accessible. The theory of the development of paranoaic states Dr. Hoch summarized briefly as follows, stating that besides basing his ideas upon facts of his own studies he had been influenced by the work of Adolf Meyer, Freund, Bleuler and Jung.

Every person has certain points on which he is especially sensitive. He has ideas or complexes of ideas which are associated with very strong feelings, These complexes refer either to personal defects. shortcomings, limitations, or to feelings of guilt, remorse, shame; on the other hand to certain longings and desires. We may, therefore, generally speaking, say that they belong either to the realm of self-assertion or to the sexual sphere, in the broadest sense of the term. Now most people are able to get square with such things, partly because their nature is such that these feelings never reach anything like a great intensity, or partly also because they have a healthy way of dealing with these matters.

Other people do *not* get square with such difficulties. They do not acquire balancing, healthy habits, such

as a healthy turning away from one's difficulties to outside interests, or a habit of unburdening or a certain aggressiveness and the like. While then such undercurrents, as we may call these complexes, when they are of any intensity, have themselves a tendency to set narrower and narrower limits to the interest and to create a certain fascination, they often become a menace to the sanity of mind, also because they are not balanced sufficiently by sound mental tendencies. In this way there develops a growing disharmony which gradually, or, sometimes under the influence of acute causes, physical or mental, may suddenly lead to an unbalancing of the mind when, finally, the undercurrents break through to the surface.

But the mind, even in the cases in which the undercurrents are not handled properly, makes certain miscarried attempts at readjustment. Thus, the feelings of defect and the longings do not come to the surface as such, but are transformed; the former give rise to a general suspiciousness and delusions of persecution, probably for the same reason that we are inclined to blame everyone else, except ourselves when anything which we do goes wrong; the latter give rise to ideas that the innermost longings are fulfilled. And there are still other forms of such miscarried adjustments.

We see then that we have two things, the undercurrents and the abnormal manner of dealing with these undercurrents, upon which we should lay stress as important in the causation of these paranoiac states. To a certain extent this division is, of course, artificial and the two principles often enough overlap greatly. Then again it is difficult often to find a correct or a definite formula for that which we have called abnormal mental habits, or difficult to pick out from among the complex fabric of mental reactions, those which are disastrous, or estimate the dangers of certain combinations, or to correctly gage the value of saving traits. Naturally it will often be a combination of traits rather than single traits which we have to consider, and while we speak of some reactions as dangerous mental habits they may exist in certain combinations in which they are sufficiently safe-guarded.

It is also very evident that other causes than an unhealthy manner of dealing with the undercurrents may enter into the casual constellation as well — such as influences which increase the strength of the undercurrents or influences, which, in other ways than those indicated, lessen the resistance, such as the action of alcohol, the menopause, and the like.

These principles were demonstrated by means of careful analysis of four cases and certain indications for treatment were discussed.

DISCUSSION.

Dr. H. R. Stedman, of Boston, was inclined to lay more stress on the influence of heredity in affecting the progress of a genuine paranoia than did Dr. Hoch. Numbers of cases of the disorder were seen in patients who had been sensibly brought up and who were treated affectionately by their families, nothing being left undone to make their surroundings congenial and their lives smooth and happy, yet in spite of it all they developed paranoia. Little could be hoped for, he believed, in the way of materially modifying the psychogenetic factors so as to make any real impression on these cases of typical paranoia, a disease arising on a defective constitutional basis and gradually and logically developing into an inflexible system of delusional thought and conduct.

He thought, however, that after the disease had developed, when family, friends and a normal environment had proved powerless to influence the disease and the patient was sent to the hospital, his condition was more susceptible of improvement than is generally thought to be possible. He had not infrequently found the paranoiac to be rendered decidedly more manageable and his life made far more comfortable by regular friendly and explanatory talks, answering his questions, making the endeavor to set him right, and satisfying such of his minor demands as were not wholly unreasonable. The fact that many of them are hopeless and cannot be reached at all by such means — in fact become worse in consequence — accounted, he thought, for the tendency that exists to pay them as a class little or no systematic attention such as Dr. Hoch adopts with his cases. Dr. Stedman questioned if the reader had not chiefly in mind the paranoid state rather than the paranoiac, that symptomatic, persecutory condition so often found in dementia precox. If so, he was wholly in accord with his view that much might be done in the way of prophylaxis. Dr. Hoch's masterly analysis of the psychogenetic conditions in his cases showed this plainly, and he believed it to be due to the fact that the morbid direction of their thought had become less impaired than in the true paranoiac. Dr. Stedman felt the same confidence that he had expressed at length several years ago, that not a few cases of this kind, when recognized early by the psychiatrist while yet the patient is comparatively comfortable, may be saved from an attack by well directed medical oversight and guidance and regulation of his habits and surroundings. He attached little importance to the menopause as a special causative factor in insanity, as individual experience and statistics seem to show quite conclusively that paranoia develops to the same extent in both sexes during the period of life in which the menopause occurs.

Dr. Charles L. Dana had been interested in Dr. Hoch's analysis, which was instructive as showing that in a certain group of cases of paranoia conditions might be improved by careful therapeutic effort. He had not been in a position to carry out this method of treatment, which could not be very successfully employed by those not connected with institutions. He agreed with Dr. Stedman as to the importance of hereditary taint in all these cases, and that a goodly proportion of paranoiacs develop in spite of careful bringing up. Few of these patients could be influenced unless they were taken in hand very early. He had been much interested in two or three cases of paranoia which illustrated that the under-current does not always break through in a way that particularly disturbs the mental make-up or general life of the patient. Such a case was a woman, about fifty years of age, now under his care, who was first seen by him when she was forty years old. She was married and the mother of two healthy children. About fifteen years before he first saw her she had developed delusions of a certain kind of persecution — that when she went out on the streets people made remarks about her, trying to annoy her and to injure her. She had these delusions throughout her married life and during her pregnancies. She was a good mother, however, and to most people who knew her she remained a good, kindly woman, about whose mental condition no one had suspicions except her husband, some members of her family and Dr. Dana. She was probably preserved from a general paranoiac state by the fact that she was able to stay in the house and keep away from sources of irritation. He had had under observation also a man, now forty years old, who had been engaged in business all his life. For fifteen or twenty years this patient had had similar delusions of persecution — that the police and detectives were after him and that attempts were being made to watch him. But this under-current delusion never broke through except in one little spot

in his brain. One or two of his children developed dementia precox at the age of sixteen. Such very limited types of paranoia certainly lent themselves to treatment by instruction and by careful selection of environment, which was all essential. As to the general correctness of Dr. Hoch's analysis there could be no question.

DR. MAURICE C. ASHLEY, of Middletown, N. Y., agreed with Dr. Hoch in the main, but he questioned whether the therapeutic talk with pananoiacs would accomplish very much as a curative measure. In his experience there had been no such beneficial results. He recalled one paranoiac who, for ten years, had believed that he had been giving him poison. At first the patient was inclined to retaliate, he threatened, and made definite efforts to take the life of the doctor's children. The man had some somatic symptoms which he himself attributed to the poison which he thought had been given him. He still has the delusions but no longer attempts to execute his threats. Another patient, a woman, for eight years had believed that he had been turning an electric current upon her for the purpose of annoying her. Every argument had been used to convince her that this was impossible, but without effect. As the disease progresses the reason of such patients becomes enfeebled and less active, and while they continue to have their delusions they become accustomed to them and cease to react much to them.

DR. WILLIAM HIRSCH thought that in forming a definite opinion concerning the cases analyzed by Dr. Hoch it must first be determined whether one had to deal with genuine paranoia, or with a paranoiacal state of another disease. Genuine paranoia is always a congenital and not an acquired disease, although the true paranoiacal symptoms often do not manifest themselves during the earlier part of life. But there is always a congenital condition, a constellation of mental factors, which not only predisposes to, but which necessarily develops, at some time of life, such a combination as to produce that mental condition known as paranoia. When such a point in any given case would be reached cannot be determined in advance, but we are, in most cases, able to predict the development of a true paranoia. Various conditions, such as environment, worry, etc., might have something to do with it, at least with a premature manifestation of the condition. He did not believe, however, that in any given case anything could be done to prevent the manifestation of the paranoiacal condition, even though it were recognized that the development of such a condition existed. This opinion was not based merely on theory. In his practice he had had children brought to him whose parents realized that they were a little peculiar, nothing more, but whom he recognized as abnormal individuals who in later life would become paranoiacs. In such of these cases as he had been able to follow for ten or fifteen years he had found that they developed genuine paranoia in spite of all the precautions which had been taken. He had warned the mother not to let the child have any impressions which would stimulate the imagination or fancy of the child, not to let it read any fiction, to guard it against any undue emotions; all this was carried out with the greatest care. But at some time in life, generally after an unusual emotion, such as falling in love, slight business troubles, something which otherwise would be of no importance, would develop a true paranoia. A normal individual, normal from the start, would never develop paranoia. A normal individual might develop melancholia, or some other acute disease, but never paranoia. When he said one must differentiate between types he meant cases in which there was genuine paranoia and those in which there was a paranoiacal state. The paranoiacal state might occur in a great many psychoses. He had seen such a case lately. A man of sixty years of age, a good business man, perfectly normal all his life, suddenly developed a paranoiacal condition; he had delusions and hallucinations, imagined there was a conspiracy against him, that his neighbors tried to kill him, etc. After remaining in this condition for nine months he gradually became demented. He is still living, and is suffering from a condition of general arteriosclerosis. The case could be defined as dementia senilis, but not as paranoia.

DR. P. C. KNAPP, of Boston, thought it a mistake always to regard delusions of persecution, with hallucinations of one form or another, as constituting paranoia, and that we should be guarded in speaking of such conditions as paranoiac states. He agreed entirely with Dr. Hirsch's opinion that true paranoia, while not a congenital condition, is dependent upon a congenital mal-arrangement, so to speak, of the brain. Tanzi had taken the same position, *viz.*, that, whereas other forms of mental disease might be spoken of as true diseases, paranoia was not a disease but a morbid congenital state which, later in life, under the influence of various factors, might develop into typical paranoia with hallucinations and delusions. He thought that the " under-current " did not always " break through." In this connection he cited the case of a woman who for years had a limited type of delusion. She had lived a secluded, narrow life in one of the smaller New England cities; for many years she had been active in the care of her household and family and in church work; she had been trained in the old New England habit of keen theological discussion and argument, and for many years she had had the very definite idea that she had been excommunicated from the church. In the main the idea had been suppressed, many of her church associates did not know of it, and those who did kept it secret. The idea existed for many years without going on to any real mental disturbance. Cases were not uncommon in which the delusions occupied a limited field in the consciousness and affected but little the conduct. With a true paranoiac, however, he questioned very much the real importance of any emotional stress, or of any psychical ideas as influencing materially the genesis of the disorder. They might influence the development in so far as changes in modern belief influence the character of delusions. As Dr. Hirsch had suggested, it was impossible to protect these patients from all influences that might give rise to the condition. Not infrequently delusions of persecution developed in normal individuals in connection with hallucinatory conditions having a distinctly physical basis. He had recently seen such a case, a man with well systematized delusions on an alcoholic basis, derived largely from tactile disturbances, which proved to arise from the paresthesiæ of a very mild alcoholic neuritis.

DR. L. PIERCE CLARK was of the opinion that the cases cited by Dr. Hoch might be called paranoid states rather than typical or true paranoia. The therapeutic suggestions outlined would be of undoubted value in these paranoid states. During the past three years he had been treating several cases by analyses and talks and the method had been very advantageous. He thought the method was of little use in true paranoia as the mental state was too fixed; his experience in asylum service had proved this fact to his entire satisfaction.

DR. SWEPSON J. BROOKS, of Harrison, N. Y., was very glad to know of the success Dr. Hoch had had with therapeutic talks. He had tried this plan and

found it productive of results in many cases, but the patients would relapse into the old condition after being released from institutions. He presumed that Dr. Hoch had reference in his paper to simple paranoid states. The question of paranoia was a hard one to go into, and sometimes one almost concluded that paranoia and paranoid states were the same, only differing in degree. The forcing of patients to do things, as suggested by Dr. Hoch, was often neglected. He had in mind two cases in which it certainly had a very salutary effect. One case was a woman, forty-five years of age, who had delusions of persecution. She was put in a very quiet hall. She complained that she was merely brought to the place to be put in jail, that there were no sick people there, and that she would like to see some sick people. She was allowed to see some sick patients; the next morning she was convinced, and she got well. That was four years ago and she had remained well since. The other case was of the manic-depressive type. The patient confessed after her recovery that her family physician had had to force her to take medicine, that he would stand her up against the wall and knock her head against it if she did not take the medicine, and that she believed his method did good.

Dr. Smith Ely Jelliffe said that Dr. Hoch's paper had offered glimpses into a large and but partly explored territory. To him, four different trends of thought were suggested, all of which were the subjects of much investigation. In the first place, the importance of the study of the mental development of the child was emphasized. The work of Weygandt, on "Abnormal Children"; of Koch, on "Pathological Inferiority"; of Hall, in his masterly work on "Adolescence"; and of Sommer, on "Character and Personality," were instances in point as to the activity of these lines of investigation. As to the psychogenic origin of certain types of delusions, Dr. Jelliffe was in accord with Dr. Hoch. He spoke of the help that might come from the literary side, as evidenced by the stories of Henry James, the "Turning of the Screw," and the "Two Magics"; Wier Mitchell's "Constance Trescott"; and Anstey's; "Statement of Stella Maberly." In all these this type of delusion formation is beautifully brought out, with great literary charm, if not with scientific pedantry. Therapeutically, he deemed Dr. Hoch's paper as stimulating, and he himself regarded certain phases of the subject with optimism. Paranoia, he said, was too large a term to use in a general blanket manner. While it is true that little can be accomplished by the most tactful of psychotherapeutic conversations in chronic lunatics who have been in the asylums for years, yet the important factor in the whole problem is to recognize the beginning stages, before the delusional ideas have become too firmly crystallized. Greater success had not been attained because the psychogenic origin of many delusional states had not been sufficiently understood. It required a rare tact to work on those patients, and the outlines given by Dubois, Dejerine and Oppenheim were but the beginnings of a scientific psychotherapy which for some time had been grasped at by pseudo-scientists. Dr. Jelliffe desired to rank himself with those who saw a hopeful outlook for the amelioration, if not cure, of certain cases of dementia precox, and of the paranoid states, by early and intelligent psychotherapy.

Dr. George H. Kirby had been interested of late in the management of paranoiac states along the lines suggested by Dr. Hoch, and thought that much could be accomplished in this way toward the correction of morbid trends. Dr. Hoch's work was particularly important in regard to the study of delusions in general. Such a method of analysis opened the way to an understanding of certain mechanisms which heretofore had been practically inaccessible.

Dr. Hoch, in closing the discussion, stated once more that what he wished to bring out was the fact that certain paranoiac states were produced by purely mental causes, *i.e.*, by conflicts and unhygienic ways of dealing with them, and that they were more or less amenable to treatment early in the course, but that naturally he did not mean to claim that old cases of paranoia could thus be influenced. It was necessary in order to help such cases that one could still get at the root of things and explain to the patient the genesis of his delusions and train him to healthy mental habits. The criticism that his cases were not cases of typical paranoia, he could not quite understand, because he was unable to see where the line could be drawn between cases such as his and cases of so-called typical paranoia. Again, to say that paranoia was caused by heredity was an exceedingly unsatisfactory way of stating the situation because it did not mean enough. He had claimed that some paranoiac states were due to an unhealthy dealing with conflicts. Such an unhealthy dealing may be due to tendencies which were more or less inherited, but that it was time to make an attempt at determining what these tendencies were, because the mere statement of heredity was absolutely barren, that the same may be said about the statement which has been made that paranoia was due to a congenital mal-arrangement. If Dr. Hirsch said that a normal individual would not develop paranoia, this was doubtless true, if by normal individual was meant one who had perfectly healthy mental habits.

Book Reviews.

Heart Disease and Aneurysm of the Aorta, with Special Reference to Prognosis and Treatment. By Sir William H. Broadbent and John F. H. Broadbent. Fourth edition. New York: William Wood & Co. 1906.

"Aneurysm of the Aorta" has been added to the title of this book since the third edition was published in 1900, and the fourth edition has been increased seventy-two pages in size. The preparation of the fourth edition has been entrusted to John F. H. Broadbent, the son, who has rearranged the subject matter and added chapters on the pulse, disease of the coronary arteries, bradycardia, and atheroma of the aorta. He has also made considerable change in the part dealing with affections of the myocardium. Sir William Broadbent has changed somewhat the chapters on angina pectoris and functional affections of the heart. The book remains, as in previous editions, an admirable and practical exposition of cardiac disease, in which much attention is given to the question of prognosis. An exhaustive discussion of each subject is not attempted, and but little attention is devoted to the consideration of the physiological theories of cardiac function except in so far as these are directly concerned with the clinical manifestations of cardiac disease. The book is written in a clear, concise style, which renders it one of the best books for the student to use when beginning the study of cardiac disease.

For the more mature practitioner it will be a valuable book to read consecutively rather than to use as a book of reference.

Broadbent recommends in percussion of the deep cardiac dullness that the finger be pressed firmly in the intercostal spaces and that the stroke must be delivered smartly and perpendicularly. Auscultatory percussion he considers of no value whatever. Though be believes that there are many possible errors in determining the cardiac outline, yet he teaches that after inspection, palpation and percussion for the most part a diagnosis can be arrived at before the stethoscope is applied. This indirectly emphasizes the importance of the methods other than auscultation in diagnosing cardiac disease.

Arterial tension is discussed at some length. The statement of Clifford Allbutt that " in aortic regurgitation the mean arterial tension is higher than in any other disease " is justly criticised. Arterial tension is defined by Broadbent as a measure of the constant mean blood pressure as expressed by the strain it exerts on the arterial wall. This closely approximates the idea generally held in America, while what Clifford Allbutt refers to is the large pulse of aortic regurgitation in which the pulse pressure — the difference between diastolic and systolic pressure — is large, while the maximum or systolic pressure is near normal, at least, as a rule, not greatly increased. Broadbent believes that the arterial tension can be quite accurately estimated by the finger, a view not in accord with that held by most observers.

For the usual terms " malignant " or " ulcerative " endocarditis, pernicious endocarditis is substituted in the same sense as the word is used in connection with anemia, pernicious anemia. Though the older terms are not satisfactory, it seems to the reviewer that " pernicious endocarditis " is not a very great improvement. That it is not possible to draw a hard-and-fast line between simple and pernicious endocarditis, all will agree. Pathologically they are rather different degrees of the same process, the extremes of which are readily to be distinguished clinically. As to the etiology of endocarditis, the inclination is toward a specific organism in rheumatic cases, though both sides of the controversy are fairly stated.

While favoring the Schott treatment by carbonated baths and graduated exercises in favorable cases, the authors criticise the percussion method of measuring the results as follows: " Too much importance is attached by advocates of the Schott treatment to the percussing out of the area of cardiac dullness and to the diminution it is said to undergo after each bath, more especially when the so-called auscultatory method is employed. This method lends itself very much to the imagination and is absolutely untrustworthy. . . . It is also probable that the diminution in percussion dullness is due not so much to fluctuations in the size of the heart as to encroachment by the lungs on the cardiac area, due to deeper respiration taken while the patient is in the bath. It does not follow that because the cardiac dullness diminishes after a bath the heart was previously dilated. . . . It is difficult to attach any real value to the remarkable diagrams of the cardiac dullness ' before ' and ' after ' the bath, published in quantity by the enthusiastic advocates of this treatment, and one is compelled to question their accuracy if not their honesty," etc.

Fatty degeneration of the myocardium is given great significance. In the words of Broadbent the younger, " more than any other it carries with it the danger of sudden death and the liability to angina pectoris." This is scarcely in accord with the more usual modern pathological teaching.

Broadbent takes active issue with Pratt in his summary of the views on the causes of cardiac insufficiency and is unwilling to exclude fatty degeneration as an important cause.

After reviewing the theories as to the cause of anginal attacks, the author adheres to the theory of spasmodic ischemia as best explaining the symptoms and harmonizing with the post-mortem findings. For Stokes-Adams disease the theory of an obstruction in the path of conduction between auricles and ventricles is not clearly accepted. In this connection, the fundamental work of His, Jr., and Kent, the latter an Englishman, is not mentioned.

This book is well printed on good paper and typographical errors are few. On page 16, by a mistake in spacing, reduplication of the second sound is made to appear " due to a synchronous closure of the aortic and pulmonic semilunar valves," which is the very condition under which the phenomenon does not occur. There is a bit of humor on page 75 in the sentence, "Austin has published an account of three cases in which he found Pfeiffer's influenza bacillus," which becomes apparent at a glance at the article referred to, for it is seen that Broadbent attributes to the name Mabel the male sex, *i. e.*, if he actually looked up the paper referred to. Again on page 346, where Johns Hopkins Bulletin is made to appear as (Dr.) " Bull. ' Johns Hopkins Hospital,' vol. xv, p. 162," something in an unintentional lighter vein appears.

Woman in Girlhood, Wifehood, Womanhood: Her Responsibilities and her Duties at all Periods of Life. By MYER SOLIS-COHEN, A.B., M.D., Instructor in Physical Diagnosis, University of Pennsylvania, etc. Illustrated. Pp. 469. Philadelphia, Chicago, Toronto. 1906.

This book is a strange combination of medical matters, advice regarding various social questions and directions as to the raising of children. We can neither condemn nor commend it. It certainly cannot appeal to medical men as a dignified presentation of important questions, but it may find a place of usefulness among certain classes of the community who are wholly ignorant of hygienic matters. The book is profusely illustrated in a haphazard way. Many of the pictures have no other than a sentimental significance, and some of them are in questionable taste.

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THE BACTERIOLOGY OF MILK.

In the course of a symposium on milk at the last meeting of the Medical Association of the Greater City of New York, Prof. H. W. Conn, Director of the Bacteriological Laboratory of the Connecticut State Board of Health, made an address on the relation of the bacteriology of milk to health, which was timely in view of the present active discussion on the milk supply of cities and the best means of securing its purity. After referring to the general misapprehension existing on the subject, he laid stress on the point that so far as bacteria were concerned, the healthfulness of milk depended, not on the number of the organisms it contained, but on their character. While some of the bacteria liable to be found in milk are injurious, others are harmless, and still others distinctly useful. Among the latter are the lactic acid bacteria which have the effect of preventing the development and growth of other and harmful organisms, and which are indispensable for cheese and butter making. There were some, he said, who advocated the destruction of all the bacteria, on the same principle as that advanced by the man who would kill all birds because once in a while a hawk kills a chicken. The kinds of bacteria to be feared in milk were the bacilli of tuberculosis, typhoid and diphtheria, and the organism of scarlet fever, as yet unrecognized; the first of these coming from the cow, and the other three being due to some form of human contamination. In addition to the four affections named, which might be communicated through milk, there was a type of disease characterized by the gastro-intestinal disturbances commonly known as cholera infantum, "summer complaint," etc., which in many instances were distinctly traceable to the use of milk, though the special causation of such disease was as yet unknown.

Among the methods at present advocated for purifying milk supplies is the setting up of a bacterial standard, and the standards of this character which have been thus far been adopted vary very widely in their requirements. Thus, one city places the maximum number of bacteria to be permitted at 500,000 per cubic centimeters, another at 100,000, and a third at 30,000. Professor Conn said that in his own little city of Middletown it would be quite an easy matter to obtain milk with a bacterial content as low as 10,000, while in New York City it was doubtful whether a standard of one million could be successfully maintained. This did not imply, however, that the milk in Middletown was one hundred times better than that in New York. It might be not one iota more wholesome, and even be distinctly less so if it happened to contain the organisms of one or more of the specific diseases referred to. As to the number of bacteria, buttermilk has a content of two, three and sometimes even five millions to the cubic centimeter, and yet physicians do not hesitate to recommend it as a particularly wholesome article of diet. As a matter of fact, these enormous numbers of bacteria in buttermilk and sour milk are practically all (perhaps 99%) of the harmless lactic acid type.

It was a difficult matter, he went on to say, for the bacteriologist to distinguish between the deleterious and the harmless types, and, while this could be done, he thought it was advisable not to place too much reliance upon bacteriological milk standards. They did not always work fairly, being often unjust to the producer; and those living in cities were too prone to lose sight of the other end of the milk route. No milk standard could guarantee that a sample of milk was entirely satisfactory. Its bacterial content might fall below 500,000, or any other figure which had been fixed upon as a standard, and yet might be filled with typhoid or tubercle bacilli. On the other hand, it might have millions of bacteria to the cubic centimeter, and still be entirely wholesome. At the present time the emphasis was placed upon the wrong point; it was upon the type of the bacteria, and not their numbers, upon which stress should be laid. Some day, perhaps, this would be done. Up to now it certainly had not been done, because it was impracticable to do it.

In the discussion which followed the formal addresses and papers Dr. William H. Park, of the

New York Health Department, expressed doubt as to whether the great majority of the bacteria found in milk were altogether harmless to infants. As to the lactic acid bacteria, while they were undoubtedly very numerous, he could hardly believe that there was so great a preponderance of them as represented by Professor Conn. He also pointed out that the morbific colon bacillus belonged to the lactic acid type of organism. Dr. Edward F. Brush, of Mount Vernon, N. Y., whose practical experience with matters pertaining to milk has probably been more extended than that of any other educated physician in the country, called attention to the fact that while Professor Conn had spoken of tuberculosis as the only one of the specific diseases communicated through milk, the germ of which might come from the cow, this was unquestionably true of one other affection also, namely, scarlet fever. He has found that cows suffer from a disease corresponding exactly to scarlatina in the human subject, and that the milk from animals affected with this disease is capable of communicating scarlatina. In the city of Mount Vernon, of which Dr. Brush has served most acceptably as mayor for several terms, the health ordinances require that every report of a contagious disease by a physician shall mention the milk dealer by whom the family of the patient is supplied. Some time since, sixty cases of scarlet fever were reported within eight days, and it was ascertained that the milk used by the families in which the cases occurred all came from one dairy. An investigation showed that the scarlatinal disease referred to was prevailing among the cows in this dairy and as soon as the dairy was closed by the health department there were no more cases of scarlet fever reported. Dr. Brush has found the same disease among dairy cows at Ossining and other places at times when outbreaks of scarlet fever were occurring in the localities.

SPIROCHETES IN MOUSE CANCER.

IN this JOURNAL of Feb. 7, 1907, appeared an editorial entitled, "A Carcinoma Parasite." This editorial noted the finding, by Gaylord and Calkins, of spirochetes in mouse cancer as reported at the one hundred and first annual meeting of the New York State Medical Society. Details of these findings have been published recently by Gaylord and Calkins.[1] Gaylord's ideas as to the relation of these spirochetes to mouse cancer is expressed in the following conclusion: "Our observations do not as yet establish an etiological relation between this organism and cancer of the breast in mice, but the presence of the organism in primary mouse cancers with which it is regularly transplanted through many generations, greatly increasing in number as the tumors increase in virulence, instead of interfering with, and finally preventing, transplantation, as do bacteria, is suggestive."

This is a conservative statement and is based on the finding of spirochetes in sixteen transplanted mouse tumors from three different sources. It is to be remembered, however, that the spirochetes occur in the connective tissue about the tumors and in the contents of cysts within the tumor. To explain how they may be the cause of the epithelial growth, Gaylord cites the attraxine theory of Fischer[2] which Fischer uses to explain why the subcutaneous injections of certain stains (Scharlach R and Sudan III) in olive oil cause an epithelial downgrowth and proliferation. In last analysis, Gaylord's findings reduce to the presence of spirochetes in the inflammatory tissue about mouse tumors. Unfortunately, he has not controlled his observations by the study of chronic inflammatory tissue in mice unassociated with tumors. It would seem that exclusion of spirochetes in such tissue is almost a necessary step before the spirochetes can be accepted as a probable cause of cancer. If they are found commonly in inflammatory conditions in mice, their presence about tumors would be of little special significance. It is feared that control work will show that the cause of cancer yet remains unknown. At least, this has so often been the fate of the alleged parasite of cancer, that such skepticism seems warranted.

[1] Jour. of Infectious Diseases, April 10, 1907, pp. 155 and 171.

[2] Münch. Med. Woch., 1906. liii, 2041.

MEDICAL NOTES.

ONE HUNDREDTH ANNIVERSARY OF AGASSIZ'S BIRTH. — Prof. Burt G. Wilder, of Cornell University, will give a memorial address on May 28, to commemorate the one hundredth anniversary of the birth of Louis Agassiz.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, April 24, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 53, scarlatina 41, typhoid fever 7, measles 8, tuberculosis 59, smallpox 0.

The death-rate of the reported deaths for the week ending April 24, 1907, was 20.18.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, April 20, 1907, was 216, against 246 the corresponding week of last year, showing a decrease of 30 deaths and making the death-rate for the week 18.70. Of this number 123 were males and 93 were females; 211 were white and 5 colored; 120 were born in the United States, 90 in foreign countries and 6 unknown; 39 were of American parentage, 149 of foreign parentage and 28 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 98 cases and 2 deaths; scarlatina, 55 cases and 1 death; typhoid fever, 6 cases and 0 deaths; measles, 5 cases and 0 deaths; tuberculosis, 55 cases and 26 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 34, whooping cough 0, heart disease 24, bronchitis 3 and marasmus 1. There were 18 deaths from violent causes. The number of children who died under one year was 27; the number under five years 40. The number of persons who died over sixty years of age was 51. The deaths in public institutions were 81.

There were 8 cases and 5 deaths reported from cerebrospinal meningitis during the week.

Reception Hospital at Coney Island. — The enlarged reception hospital at Coney Island was formally opened by Charities Commissioner McEnerney and other city officials on April 15.

Winner of the Boston Marathon Race. — Thomas Longboat, an Indian runner from Toronto, won the Marathon race of the Boston Athletic Association last Friday, April 19. Longboat not only won the race, but beat the best previous record by 5 minutes 2 4-5 seconds.

The second contestant, Robert Fowler, of the Cambridgeport Gymnasium Association, also broke the record, but came in more than three minutes behind Longboat.

The course was twenty-five miles from Ashland to Boston. The winner ran easily and finished in good condition.

Springfield, Mass., Academy of Medicine. — Measures have been taken to found an academy of medicine at Springfield, Mass., with a capitalization of $50,000. The object is to establish a post-graduate course in medicine and a meeting place for various medical clubs and associations in several of the New England states. It is hoped finally to erect a suitable building. Permanent officers have been elected, among whom are the names of Dr. W. A. Smith, of Springfield, President, Drs. John A. Houston, of Northampton, and R. H. Seelye, of Springfield, First and Second Vice-Presidents; Dr. Joel I. Butler, Secretary and Dr. W. H. Van Allen, Treasurer.

A Diphtheria Epidemic Traced to Milk. — An epidemic of diphtheria, which has recently occurred in the towns of Hyde Park, Milton and Dorchester, has been satisfactorily traced to contaminated milk. All of the cases, although in different localities, were found to be due to the milk of a single producer on the routes of two milkmen. The cases all occurred within a week, and investigation showed that a child of the dairyman was the first victim. Through this child the contamination resulted, and although it is probable that but one day's supply became affected, a disastrous epidemic numbering approximately forty cases resulted with several deaths. No further spread of the disease is expected.

NEW YORK.

Erysipelas. — For some unexplained reason there has been of late a marked increase in erysipelas in the city. On a single day, April 4, no less than 15 cases of the disease were admitted to Bellevue Hospital, and on the two preceding days, together, seventeen cases.

Appointments; New York College Physicians and Surgeons. — At a meeting of the trustees of Columbia University, held on April 8, Dr. Simon Baruch was appointed Professor of Hydrotherapy, and Dr. Porter Flewellan Chambers, Clinical Professor of Gynecology in the College of Physicians and Surgeons, the medical department of the university.

Free Glasses for Public School Children. — On April 19, there was a hearing before the committee on elementary schools of the Board of Education on the proposition pending before the board to furnish free glasses to all children in the public schools requiring glasses whose parents cannot afford to procure them; and against the measure there appeared representatives of most of the larger charitable organizations of the city. These commended the board for undertaking the work of having the children's eyes examined and cases of defective vision corrected, but objected to the plan of having the city furnish glasses on the ground that there were plenty of societies which would perform this service in instances of real need, and that any such general action of

the board, if not absolutely unlawful, would be false charity and tend to defeat the ends for which it was intended. Among those who spoke were Edward T. Devine, general secretary of the Charity Organization Society, who declared the project to be unnecessary, unwise and demoralizing. Dr. Charles S. Bull also said it would be an abuse of charity. During an experience of over thirty years at the New York Eye and Ear Infirmary he had met with very few cases in which parents were unable to provide glasses for their children, and in such cases it had always been found possible to have the glasses furnished through some charitable agency. Dr. C. B. Meding, of the Harlem Eye and Ear Infirmary, said that out of nearly 4,000 children for whom glasses were prescribed at that institution during the last five years, there were but 31 cases in which the glasses were not paid for by the parents. He made the suggestion that the city should reimburse charitable institutions for glasses furnished in cases in which the inability of the parents to pay was shown after careful investigation.

BEQUESTS. — By the will of the late William C. Egleston, of New York, $275,000 is left to charitable and educational institutions. Of this amount, $100,000 goes to St. Luke's Hospital for the endowment of free beds, to be known as the William C. and Ella Egleston beds, and $20,000 to St. Mary's Free Hospital for Children, for the endowment of beds in memory of two deceased children. Among other charitable bequests left by the late Daniel Sheehan, of New York, are $5,000 each to St. Joseph's Hospital, the Séton Hospital for Consumptives, the House of the Good Shepherd, and the New York Foundling Hospital.

Obituary.

THOMAS HENRY WAKLEY, F.R.C.S.

THOMAS HENRY WAKLEY, or, as he was more generally known, Thomas Wakley, died early this month at his home in London in his eighty-seventh year, and the London *Lancet* thereby loses its senior editor. He was the eldest of the three sons of Thomas Wakley, coroner and member of Parliament, who founded the *Lancet*, and who remained associated with it up to the time of his death, transmitting his interest to his son, who has now just died full of years and reputation, not only as a journalist, but also as a broad-minded physician. In 1857, Thomas Wakley, the father, having resigned from Parliament, made an arrangement through which his eldest and youngest sons became part proprietors in the periodical which he had founded. In 1862, on the death of the elder Wakley, the youngest son became an editor. Thomas Wakley also took an active interest in the affairs of the journal, and, together with his son, the third Thomas Wakley, our contemporary has flourished and prospered. There is probably no other instance in which a great medical journal has remained in both the editorial and financial control of a single family, and it is a matter of congratulation that the management of the journal will continue in this family, which has done much for medical journalism in maintaining the high standard which the *Lancet* has invariably assumed.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. APRIL 6, 1907.

1. *KOPLIK, H. *The Clinical History and Recognition of Tuberculous Meningitis.*
2. KIEFFER, C. F. *Intermittent Tick Fever.*
3. *HEKTOEN, L. *Is Scarlet Fever a Streptococcus Disease?*
4. BRUNSON, R. *Some Syphilitic Diseases of the Eye.*
5. ALDRICH, J. F., and CRUMMER, L. R. *Polycythemia.*
6. ALLPORT, F. *The Radical Mastoid Operation.* (Concluded.)
7. *CALVERT, W. J. *Pulsus Paradoxus in Pericarditis with Effusion.*
8. CUMSTON, C. G. *Drainage of the Hepatic Duct.*
9. KEBLER, L. F. *Synthetic Chemicals and Their Relation to the Pure Food and Drugs Act.*
10. *HATCHER, R. A. *Tincture of Strophanthus.*

1. Koplik gives an analysis of 52 cases of tuberculous meningitis. All the cases utilized in his article were diagnosed clinically and the diagnosis confirmed by post-mortem, lumbar puncture or animal experimentation. The oldest patient was ten years, the youngest six months, the average four years and four months. The onset, in cases in which reliable data could be obtained was generally insidious, and Koplik is inclined to question the majority of the reports of sudden onset in this disease. Rigidity was absent in fourteen (27%); hyperesthesia was lacking in the great majority (90%), the patient generally lying dull and giving little attention to surroundings and reacting slowly to irritation. The Kernig symptom was present in only twenty-two cases, and he considers it of comparatively slight diagnostic value. The Babinski reflex, on the other hand, is, he thinks, a more valuable evidence of the tuberculous nature of the disease, as it is exceptional in the cerebrospinal type. Skin eruptions, the *tache cerebrale*, the character of the pulse and of the respiration have not much value for the diagnosis; vomiting occurs when the ventricles are distended, but is not a leading feature or persistent. Temperature is important; the absence of fever or persistently low temperature with the cerebral symptoms is strong evidence of tuberculous meningitis. Very high temperature means either a complication or approaching death. Localized pareses only appear toward the close of the disease, and then their evanescent character is characteristic. While leucopenia is a presumptive evidence of a tuberculous process, the leucocyte count furnishes nothing pathognomonic in this form of meningitis. The eyes of all the patients were examined by experts and some change, varying from optic neuritis to choroidal tubercle, was found present from the beginning in 66%. This symptom sharply distinguishes this form from other types of meningitis, especially the cerebrospinal, in which fundal changes are rare. Skull percussion is of the greatest value in the early stages of the disorder when the symptoms are still rather equivocal. Macewen's method should be followed; the patient is in an upright position, the head slightly inclined and per-

cussed over the pterion. Koplik found this of value in 34 of his 52 cases. Lumbar puncture, while admittedly the most valuable precise diagnostic method, is advised only as a confirmatory method after the clinical examination has rendered the presence of tuberculous meningitis highly probable. In other words, Koplik advocates it only as a means of confirming or excluding the presence of a disease whose prognosis is hopeless. He believes that careful search will reveal tubercle bacilli by this method in a majority of cases. Although a lymphocytosis of the puncture fluid is not pathognomonic, a predominance of lymphocytes is of considerable significance and certainly excludes the diagnosis of certain acute purulent forms of meningitis. Summing up the diagnostic points the author says that the diagnosis of tuberculous meningitis in its earlier stages is possible to-day, whereas it was well-nigh impossible formerly. The slow onset interrupted by periods of irritability, etc., the irregularity of the pulse and respiration, the low or normal temperature, the absence of hyperesthesia, the lack of appetite, and the discovery of hydrocephalus by percussion of the skull will all tend to establish the diagnosis. If after this we can obtain a lumbar puncture, the examination of the fluid in the great majority of cases will put the diagnosis beyond a doubt. The examination of the fundus of the eye is also conclusive in many cases.

3. Hektoen calls attention to the prominent part which the *streptococcus pyogenes* must be admitted to play in scarlet fever, from its almost constant presence in the throat of scarlet fever patients, its well-known predominance in complications, its occurrence in the blood as shown by blood cultures. Some observers have found increased agglutinating power for streptococci in the serum of scarlet fever patients. The streptococco-opsonic index is low in the early stages and later increased. Yet certain facts argue against the streptococcus as the cause of the disease. The permanent immunity which one attack of scarlet fever produces is without parallel in known streptococcus infections. Streptococci are rarely found in the skin or scales of scarlet fever cases. Streptococci are no more prevalent in scarlet fever than in smallpox. Thus it is unlikely at present that the streptococcus is the cause of scarlet fever. The streptococcus, however, is of great importance as a secondary invader. Precautions should be taken to prevent transmission of streptococci from patient to patient in scarlet fever wards.

7. Calvert has studied the cadavers of two cases of pericarditis with effusion to investigate the cause of the pulsus paradoxus. In one case the superior vena cava was found collapsed within the pericardial cavity. This is taken as evidence that the cause of the diminished pulse volume during inspiration is compression of the vena cava at this time. Calvert assumes that the pressure in the vein is more influenced by respiratory changes than is the pressure in the pericardial cavity, and that therefore the compression of the vein by the pericardial fluid is greatest when the intrathoracic pressure is lowered in inspiration. The discussion is not conclusive.

10. Hatcher finds that preparations of tincture of strophanthus obtained in ordinary drug stores are quite as uniform in potency as are other tinctures not standardized, and vastly more uniform than preparations of digitalis. Strophanthus as compared to digitalis has been little used, largely because when it was first introduced the preparations were variable in the extreme. Now that this difficulty has been overcome, strophanthus deserves a more general reputation. It is more rapid in action than digitalis, produces less vasoconstriction, and tends less to cumulative effects. Strophanthin also possesses advantages over digitoxin, being less irritant and much more active. [F. W. P.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, APRIL, 1907.

1. GOLDWATER, S. G. *The Medical Staff and Its Functions: a Study in Hospital Organization.*
2. *WARREN, J. C. *Abnormal Involution of the Mammary Gland with Its Treatment by Operation.*
3. *DEAVER, J. B. *The Surgical Aspects of Gastric Carcinoma.*
4. *KOPLIK, H. *Hydrocephalus Complicating Epidemic Cerebrospinal Meningitis.*
5. *COOK, H. W. *Cardiovascular Regulation during and after Operation.*
6. *ROUS, F. P. *Clinical Studies of the Cerebrospinal Fluid.*
7. FALES, L. H. *Tropical Neurasthenia.*
8. MILLER, J. L. *Experimental Arterial Degeneration.*
9. McWILLIAMS, C. A. *Some Congenital Anomalies of the Hands and Feet.*
10. HAMILL, S. McC. *Standards and Work of the Philadelphia Pediatric Society's Milk Commission.*

2. Warren describes the process of involution of the mammary gland, which occurs at the time of the menopause, and classifies the abnormalities which are observed. These are important of recognition since they must be distinguished from beginning carcinoma. A mass in the breast distinctly a product of abnormal involution must not, however, be regarded as surely benign, since certain types are associated with epithelial proliferation which may become malignant. In 115 cases of abnormal involution the presence of cancer was demonstrated in 15, or 13%. To meet this danger, and yet to avoid unnecessary amputations, Warren advocates an exploratory operation which he describes. The incision is made from the lowermost point of the breast margin, upward and outward along the anterior axillary border, until the breast can be turned upward, and its deep surface inspected. The abnormal tissue is excised, and, if necessary, examined microscopically. If no evidence of malignancy is found, the operation can be completed with almost no disfigurement. In 50 cases of cysts of the breast in which this procedure was followed, the diagnosis was made at time of operation in all, and in none has subsequent tumor developed.

3. Deaver emphasizes the frequent occurrence of cancer of the stomach, not only in cases when it develops in the classical manner and sooner or later is discovered, but also in cases with a long-standing history of dyspepsia, finally fatal, in which first ulcer and later cancer exist unrecognized even to the end. In view of the brilliant results of surgery in chronic ulcer, he urges gastro-enterostomy as an operation which may be considered a preventive of cancer. When cancer is already present, operation is also advised, if only to prolong life and to reduce the ultimate suffering. The hope of permanent cure by pylorectomy, moreover, is not so slight that it can be disregarded. The choice of operation must be deferred until the abdomen is opened. In some cases pylorectomy offers a fair prospect of permanent cure. In most cases the disease is too far advanced to permit any operation but gastro-enterostomy. This, however, is justified by the relief of symptoms which it affords. In cases still more advanced jejunostomy is an operation which will do much to prolong life.

4. Koplik calls attention to the importance of hydrocephalus as a cause of symptoms in the course of cerebrospinal meningitis. Symptoms referable to hydrocephalus are headache, pain in the neck, vomiting, unconsciousness and convulsions, occurring often in paroxysms. Hydrocephalus may appear suddenly with the onset of the disease; it may develop gradually in infants below one year of age; it may occur in an acute form in the later stages of the disease. Its appearance at any stage is a serious event; prompt recognition and treatment are essential to save the patient's life. In diagnosis, Koplik lays great stress upon percussion of the skull, as described by Macewen. Where there is distention of the ventricles with fluid, percussion of the skull will give a tympanitic note, which is considered pathognomonic. In treatment, withdrawal of fluid by lumbar puncture is the sole reliance. The relief which this affords, as in cases described, is great, and is, according to Koplik, the only important use of lumbar puncture. Lumbar puncture for diagnosis should be unnecessary, and to remove purulent exudate it is ineffectual. Patients without hydrocephalus do well without lumbar puncture. Koplik, therefore, resorts to lumbar puncture only when he is satisfied of the presence of hydrocephalus.

5. Cook reports the results of his observations upon abnormal cardiovascular conditions, made especially upon surgical cases. The abnormalities were divisible into two main classes: those associated with increased tension and those associated with low tension. Cases of the former class stand operation poorly, tending to suffer cardiac dilatation and renal insufficiency. Cases of the second

class, with low tension pulse, stand operation well, provided that chloroform is not used, but show a lowered resistance to infections and pneumonia. To correct abnormalities sodium nitrite is used to reduce resistance in peripheral arteries and strychnia to improve conditions of low tension. During operations frequent determinations of blood pressure are the most delicate index of changes in the patient's condition, since hemorrhage and shock produce changes in it long before warning is given by the pulse. Rise of pulse due to infection can be distinguished from hemorrhage since it is not accompanied by a fall in blood pressure.

6. Rous describes his methods of examination of cerebrospinal fluids and his results. A complete clinical observation of a fluid obtained by lumbar puncture should include determinations of the pressure under which the fluid is held in the subarachnoid cavity, of the protein content of the fluid, and of the number of cells per cubic millimeter, as well as observation of the kinds of cells present. The pressure is measured by a vertical small caliber tube connected with the needle. The protein content is determined by Esbach's process in a small test tube. The number of cells per cubic millimeter is counted by a red blood counting pipette filled with 4 parts in 1,000 of methyl violet solution and 996 parts of cerebrospinal fluid. The kind of cells present is observed by staining a centrifugalized sediment. Lymphocytosis has been observed in tuberculous meningitis, tabes, general paresis and syphilis of the central nervous system. The pressure of the fluid has been reported by other observers to be, in normal cases, 120 to 180 mm. of distilled water. In cases considered normal Rous found the pressure to vary from 70 to 300 mm. In tuberculous meningitis it was 240 to 550 mm., in purulent meningitis 290 to 560 mm.; in other abnormal conditions such as brain tumor and uremia the pressures were high. The protein content averaged in normal fluids ½ gm. per liter, in tuberculous meningitis slightly less than 1 gm. per liter, in purulent meningitis 2.5 gm. per liter. In normal fluids the cells averaged 2.75 per cubic millimeter; in tuberculous meningitis there were 43 to 686; in purulent meningitis 1,300 to 30,000 per cubic millimeter. The cells found in normal cases were all mononuclear basophiles of variable size. The tuberculous cases showed great predominance of lymphocytes. In purulent meningitis in the acute stages polynuclear neutrophiles predominated, but in certain cases which became chronic the fluid became indistinguishable from the tuberculous fluids. In certain fluids formed elements were found which could not be classified as cells. These were proved by experiment to be products of cell degeneration. [F. W. P.]

THE LANCET.
MARCH 30, 1907.

1. SAVAGE, G. H. *The Increase of Insanity.*
2. SEMON, F. *The Relations of Laryngology and Rhinology to General Practice.*
3. BUZZARD, E. F. *Certain Acute Infective or Toxic Conditions of the Nervous System.*
4. BOLTON, C. *The Treatment of Acute Heart Failure.*
5. RAW, L. *Cerebrospinal Fever.*
6. *GORDON, A. K. *A Series of Cases of Puerperal Septicemia; with Comments.*
7. *WYNTER, W. E. *Chloretone and Its Uses, especially in Chorea.*
8. *SHAW, H. B., and COOPER, R. H. "*Pulmonary Hypertrophic Osteo-arthropathy" Occurring in a Case of Congenital Heart Disease* (1).

6. Gordon gives the details of 49 cases of puerperal septicemia with special reference to the bacteriology and serum treatment. In cultures from the interior of the uterus streptococci were present in 29 cases, the colon bacillus in 6 cases, gonococci in 1 case, staphylococci in 1 case and an unknown bacillus in 1 case. But of 27 blood cultures, streptococci were found in 8 instances. In addition to strenuous surgical measures, antistreptococcus polyvalent serum was used in 20 patients, in 16 of whom streptococci were found. The serum represented mixed cultures of streptococci isolated from 5 cases to which later more were added. The doses were about 100 cc. The writer feels that smaller doses of 10–20 cc. are useless. In these large doses he has never seen any bad results and thinks it does good and believes in its use if merely on the chance that it may do good.

7. Wynter strongly recommends chloretone (trichlor-tertiary-butyl-alcohol) in irritative stomach lesions, in sea sickness, and especially in chorea in which disease he has had remarkably good results with it. The dose is 5 to 10 gr.

8. Shaw and Cooper report a case of congenital heart disease in a girl of twenty-one who for the last ten years suffered from pains in ankles and wrists and in the shafts of the long bones of the legs, more particularly after walking. The tuberculo-opsonic index was normal, red cells 8,320,000, whites 9,300, hemoglobin 150%. X-ray showed enlargement of the fibulæ and tibiæ of both legs, especially of the lower two thirds, more marked on the right; there were irregular bony deposits in the ligaments and an increase of bone in both femurs, the head and neck of which were normal. These changes in the bones and the joint pains constitute what is generally called "pulmonary osteo-arthropathy" of Pierre Marie because associated with certain lung diseases, as tuberculosis, bronchiectasis, empyema, neoplasm, etc. In this case there were no lung lesions and this supports the view of Béclère and Groedel that these changes are due to a toxin formed by some fault in metabolism, not necessarily in the lungs. The case is unique, appearing to be the only one in which congenital heart disease has been associated with these bony changes. [J. B. H.]

BRITISH MEDICAL JOURNAL.
MARCH 30, 1907.

1. BRADFORD, J. P. *The Diagnosis of Certain Forms of Renal Disease.*
2. JESSOP, W. H. *Albuminuric Retinitis.*
3. PERNET, G. *Remarks on the Treatment of Syphilis.*
4. *RUFFER, M. A., and others. *Researches on the Bacteriological Diagnosis of Cholera.*
5. SAVAGE, G. H. *Insanity, Its Causes and Increase.*

4. Ruffer in making autopsies on some who had died while on a pilgrimage to Jeddah in 1897, the cause of death not being cholera, found typical cholera lesions in the intestine and a large number of micro-organisms not to be distinguished from cholera vibrios. The agglutination tests were positive. Clinically, there was no sign of cholera. No case of true cholera developed subsequently. In later investigations it was found that the stools of almost every pilgrim suffering from disease other than cholera, from pneumonia, rheumatism, etc., contained many vibrios, and that these gave a positive agglutination test while vibrios in the few cases of cholera that occurred did, not give this test. In 1905, after this region had been free from cholera for nearly two years, the stools of every patient that died were examined, and vibrios were found in 38 out of 107 cases. Ruffer believes that these pilgrims infected themselves at Mecca or Jeddah from drinking water. As no cases of real cholera resulted clinically, these vibrios cannot be called true cholera vibrios, and the agglutination, saturation and Pfeiffer's tests are not in themselves of absolute diagnostic value. [J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, NO. 12.

1. LOEFFLER, F. *The Twenty-fifth Anniversary of the Discovery of the Tubercle Bacillus.*
2. *STARCK, H. *The Intravenous Use of Strophanthin.*
3. *JORDAN, M. *The Medical Treatment of Appendicitis and the Indications for Surgical Intervention.*
4. *JOSEPH, G. *A Case of Cancer of the Stomach of Metastatic Origin.*
5. KAMP. *A Case of Intermittent Hydrops of Both Knees.*
6. SCHERESCHEWSKY, J. *The Demonstration of the Spirocheta Pallida in Smears.*

2. Starck recommends the intravenous use of strophanthin, claiming all the advantages of digitalis, with greater quickness of action and increased diuretic effect, without, in his experience, any unpleasant results. He uses very small doses, beginning with ½ mgm., then ¾ and at most 1.25 mgm.

3. Jordan summarizes the treatment of appendicitis thus: (1) The possibility of operation must be considered

in every case of acute appendicitis, however mild. (2) The attention of the physician should be directed towards determining the character of the inflammatory process rather than the treatment of the attack. (3) Since this can only be obtained by exact observation, the use of opium preparations is contra-indicated. (4) Mild cases, if under careful observation, may be treated medically. (5) Immediate operation on all cases, which from the onset or from the second or third day, are classified as severe or doubtful. (6) The treatment of severe cases by medical means is unjustifiable. (7) Interval operations are indicated after a severe first attack, after two or more light attacks, and with chronic symptoms persisting after the attack. (8) In chronic appendicitis extirpation is the most sure and rational means of cure.

4. Joseph reports the autopsy findings of a case of mammary carcinoma with numerous metastases in lungs and pleura, including two in the submucosa of the stomach, also in the spleen. [L. G. M.]

Münchener Medizinische Wochenschrift, No. 11. March 12, 1907.

1. Cremer, M. *The String Electrometer and Its Use in Electrophysiology.*
2. *Rubin, J. *The Course of Urobilinuria in Typhoid Fever.*
3. *Vérse, Max. *Cysticerci in the Fourth Ventricle as the Cause of Sudden Death.*
4. *Frese, O. *Microscopical Worms (Rhabditis) in the Stomach of a Patient with Ozena.*
5. Vorschütz, J. *The Treatment of Cerebrospinal Meningitis with Passive Congestion and Lumbar Puncture.* (Continued article.)
6. *Avellis, G. *The Treatment of Hay Fever.*
7. *Bass, O. *One Hundred and Seven Cases of Childbirth Treated with Scopolamin-morphin Semi-narcosis.*
8. Toff, E. *Remarks on Protection of the Perineum.*
9. Schottelius, M. *Hemostix, an Instrument for the Procuring of Blood for Diagnostic Purposes.*
10. Lengfellner, K. *A Case of External and Internal Anthrax.*
11. *Strebel, H. *The Application of the X-Ray to the Interior of Cancer Growths.*
12. Hocheisen. *Further Remarks on the Use of Scopolamin and Morphin in Labor.*

2. Rubin describes the course of the urobilin excretion in typhoid fever on the basis of eight cases followed by him. Urobilin in the urine is scanty or absent from the beginning till well into the fastigium, the amount increases rapidly with the first remissions, and continues a while into convalescence. Cases with constipation showed larger amounts than those with diarrhea; the amount excreted seemed to vary with the severity of the disease, being probably proportional to the impairment of the function of the liver. A severe case with nephritis showed little urobilinuria, the excretion of the substance being interfered with.

3. Report of two cases of cysticercus in the fourth ventricle with sudden death. The autopsy showed in each marked hydrocephalus with blocking of the foramen of Magendie, the latter due to proliferation of the ependyma. The sudden death is not to be ascribed to the cysticercus itself, which was shrivelled and dead in both instances, but rather to sudden variations in the intracranial pressure acting on the centers in the medulla.

4. In Frese's case of ozena in which nasal secretion was regularly found in the stomach contents, the latter showed for a period of two months numerous small worms which belong to the genus rhabditis. Such creatures are found living free in the presence of putrifying material, and may be rarely parasitic in man. The condition for such occurrences is the existence of putrifying organic material, such as the nasal secretions in the author's case.

6. Avellis has found benefit in hay fever from the treatment of the nose with the galvanocautery for a short period preceding the expected outbreak of the disease, and repeated for several years. The serum treatment with pollantin or graminol helps many patients and should be given a trial. It is of benefit, however, only where the nose is not already in an irritated condition. The irritation of the nose can be stopped by the local use of rhinoculin salve, a preparation compounded of anesthesin, subcutin and paranephrin. This salve is often of itself enough to keep the patient comfortable, and makes it unnecessary to send him away to another climate. It is important to avoid exposure to pollen as much as possible, and this is rendered easier by the use of the Mohr nasal filter, an apparatus which is worn in the nose and prevents pollen from getting inside.

7. Bass has used the scopolamin-morphin combination in 107 cases of labor, and comes to the following conclusions: (1) The pain of labor is much diminished in the majority of cases; (2) the best dose is 3-10 mgm. scopolamin (hyoscin hydrobromate) with 1 cgm. morphin; (3) there is in many cases a lengthening of the first two stages of labor; (4) the uterine contractions and the length of the third stage are not influenced, but the abdominal contractions are often impaired; (5) the injections are not dangerous for the mother; (6) in a fair proportion of cases the child showed disturbances of respiration attributable to the drug, and in one case death resulted. [The advantages of this method are still a matter of dispute, and its dangers are such that it is not suitable at present for use in general practice.]

11. Strebel has devised an apparatus by means of which the x-ray may be directly applied to the interior of subcutaneous tumors. This is a great advantage, for the x-ray does not penetrate far beneath the skin. [W. T.]

Berliner Klinische Wochenschrift, No. 10. March 11, 1907.

1. *Raecke. *Hysterical Insanity.*
2. Weleminsky, F. *The Path of Infections in the Lymph Passages.*
3. Litthauer, M. *Retropharyngeal Tumors.*
4. Bloch, A. *A New Apparatus to Sterilize Catheters.*
5. Fischer, B. *The Cancer Problem.*
6. Ehrlich, P. *Chemotherapeutic Studies on Trypanosomes.* (Continued.)
7. *Tobias, E., and Kindler, E. *The Physical Treatment of Tabes Dorsalis.* (Concluded.)

1. Raecke describes several forms of hysterical psychosis which are important because they are easily mistaken for incurable mental or nervous disease, such as dementia precox and apoplexy. Three types can be distinguished: (1) The excited, stuporous form in which outbreaks of mania alternate with periods of retardation; delirium and attacks of somnambulism may occur. (2) The depressive form with attacks of anxiety, stupor, confusion (Dämmerzustande) and melancholia. (3) The paranoid type with systematic delusions of persecution. The diagnosis is made partly on the previous history, partly on the general hysterical behavior of the patient, while the hysterical stigmata are often absent. The prognosis is always favorable as to the eventual outcome, but the course is often tedious. The treatment is that of hysteria in general.

7. The modern treatment of tabes, in the absence of a specific, is essentially physical and dietetic. Little is to be expected from antisyphilitic therapy. The general condition is always to be taken into account. The diet is important, for most tabetics are under-nourished. It should be non-irritating, with restriction of meat, and plenty of carbohydrates and fats; in the small class of obese tabetics a cautious reduction of weight is indicated. With regard to exercise great care in necessary, for rest cures may increase the ataxia, and excessive fatigue often brings on a marked change for the worse. Frenkel's method of systematic exercises is of the greatest benefit in combating ataxia, but must be used with judgment, not to the point of undue fatigue. Massage is beneficial when given in a mild form. Hydrotherapy can do much to better the general condition and to stimulate that portion of the nervous system which is not yet diseased. The employment of drastic measures is always contra-indicated. The severer cases should have only the warm full-bath, followed by rest in the reclining posture; the more stationary type is benefited by the half-bath, gradually cooled, the carbon dioxide bath, and the wet pack. Cold douches are better avoided altogether. [W. T.]

Miscellany.

PHILADELPHIA PATHOLOGICAL SOCIETY'S SEMI-CENTENNIAL.

THE Pathological Society of Philadelphia, which is one of the oldest, if not the oldest, society of its kind on this continent, will celebrate its semi-centennial in May, 1907. Instituted at a time when pathology scarcely had a foothold in this country, it has kept pace with the tremendous development of that science, and has had a share, not only in increasing Philadelphia's eminence as a medical center, but also in fostering the scientific spirit in America.

The celebration will extend over two days, Friday, May 10, and Saturday, May 11. On the first day addresses will be delivered by Dr. Frederick G. Novy, of Ann Arbor, Mich., on "The Rôle of Protozoa in Pathology"; by Dr. Simon Flexner, of the Rockefeller Institute, New York, on "The Newer Pathology"; and by Dr. A. E. Taylor, of the University of California, on "The Dynamic Point of View in Pathology."

In the afternoon, at four o'clock, a commemorative meeting will be held in the Pennsylvania Hospital, where the first meetings of the society, in 1857, took place. At this meeting, Dr. William Osler, Regius Professor of Medicine, Oxford University, will deliver an address on "Pathology and Practice."

At a dinner in the evening, prominent men from all parts of the country will respond to toasts.

An exhibition meeting of interest to pathologists, clinicians, and surgeons will be held.

The date of the celebration will enable those to be present who have been in attendance upon the Congress in Washington, and those who are coming east a little in advance of the meeting of the American Medical Association.

MASSACHUSETTS GENERAL HOSPITAL RESOLUTION ON THE REGISNATION OF J. W. ELLIOT, M.D.

IN the resignation of Dr. Elliot from the Massachusetts General Hospital, the Visiting Staff feel a great personal loss, the weight of which it is difficult to express in words. The members of the staff have always appreciated the great merit of his work, and they cannot but look with deep concern upon the withdrawal of his services; for they, better than any others, know the value of unselfish devotion and long experience when based upon intelligence, originality, and — best of all — common sense.

The visiting surgeons wish to express to Dr. Elliot the regret they feel at his withdrawal from the hospital; their appreciation of his personal and professional worth; and their best wishes for his success in the field of private work.

Correspondence.

LONDON LETTER.

[From our Special Correspondent.]

CLINICAL SOCIETY OF LONDON. NERVE GRAFTING BY LATERAL IMPLANTATION. GIANT GROWTH OF FEET. "PULMONARY" HYPERTROPHIC OSTEO-ARTHROPATHY. CONAN DOYLE. LISTER. WRIGHT. ALCOHOL. DEATH OF ALLEN MACFADYEN.

LONDON, April 9, 1907.

Mr. Editor: At the last meeting of the Clinical Society of London, three cases were exhibited by Tubby, the the orthopedist, which excited a great deal of interest. The first was a successful case of treatment of facial palsy by grafting the distal ends of the cut seventh nerve into the trunk of the hypoglossal. The patient, a boy of nineteen, had had an abscess at the left angle of the jaw, which had been opened by an incision transverse to the course of the facial nerve. At the operation, it proved very difficult to identify the distal end, which was eventually found in two divisions; the proximal end it was impossible to find. The hypoglossal was therefore exposed and brought up as near the facial as possible; the two distal portions of the facial were then implanted into a longitudinal incision in the twelfth. The result was surprising in that motor power in the facial muscles showed definite signs of return at the end of the first week, and steadily progressed until, five months afterwards, the functional power was almost perfectly recovered. The tongue, which at first showed some atrophy on the left side, entirely recovered and exhibited no associated movement upon voluntary movements of the face. The result, indeed, was very nearly perfect.

It was, however, the other two cases which attracted most attention, illustrating, as they did, the application of this same principle to the treatment of infantile palsy. The patients were boys, each nine years of age and both suffering from talipes calcaneus; in both, the gastrocnemius and soleus were the only muscles exhibiting total inexcitability to electrical stimuli, or the reaction of degeneration. In one case the whole lower extremity, in the other the leg below the knee, was smaller and colder than its fellow of the opposite side, but all the muscles except those mentioned reacted to faradism. At the operation, the fibers of the internal plantar trunk destined for the sural muscles were isolated; it was shown that the muscles contracted upon direct stimulation of their nerves, and these nerves were then severally grafted into the external popliteal trunk, with as little disturbance as possible. In one case four and a half months elapsed before any return of power could be noted, but when exhibited, nine months after operation, there was undoubted action of the calf muscles and the gait was quite satisfactory.

In the other case, although the tendo Achillis could be rendered tense, there was not enough power in the muscular contraction to admit of raising the body on the left foot. In this case the muscles had recovered their reaction to faradism, and to galvanism K.C.C was greater than A.C.C.

Of course, this method can only be pursued in specially selected cases, but when used with discretion, it bids fair to surpass the results obtained by tendon-transplantation, whilst it is not open to the same mechanical objections. Moreover, the method should prove capable of more extended application.

I am impelled to mention one or or two other cases of interest, chiefly as pathological curiosities, exhibited at the same meeting. The most extraordinary was that of a young girl of nineteen, otherwise healthy and normal, who was the subject of congenital hypertrophy of the feet. To say that the feet were some twenty inches or more in length, and even broader in proportion, conveys nothing at all comparable to the visual impression. There was nothing of the nature of elephantiasis about them; the bones were large in proportion, but the phalanges and metatarsals exhibited the giantism more decidedly than the tarsus. The left lower extremity to some extent shared in the hypertrophy. Photographs and radiographs will doubtless appear eventually in the transactions of the society.

Another case, said to be the first on record, was one of "pulmonary" osteo-arthropathy associated with congenital heart disease, the lungs themselves showing no evidence of disease. The phalanges showed but little thickening, whilst both tibiæ and fibulæ and the femora were greatly enlarged.

The name of Conan Doyle has become so much a household word on this side, and I suppose on your side too, that one might be pardoned for forgetting he had any closer connection with medicine than the impersonation of "Sherlock Holmes" and "Dr. Watson." It has been brought to mind forcibly by his advocacy of the case of a man named Edalji, convicted some time since of a series of dastardly cattle-maiming crimes in the Midlands. The circumstances were exceedingly curious, not to say mysterious, and the evidence against him, though very strong, was rendered inconclusive by the occurrence of similar outrages in the same neighborhood after his arrest. At any rate the man was released after serving some two years of his sentence, and then a very strong train of evidence, established by the prosecution and fastening the guilt of at least one midnight crime upon Edalji, was transformed into strong presumptive if not positive evidence of his innocence — for Conan Doyle ascertained that he was the subject of an extreme degree of myopia, and the defect in his vision was such as to render him physically incapable of traversing the requisite distances over difficult country, catching the animals which were turned loose, and regaining his home within the time during which his whereabouts could not be certainly accounted for.

Starting from this firm foundation, the creator of "Sherlock Holmes" was able, quite in the manner of his hero, to elaborate a very strong case for exculpation, and a claim for compensation for wrongful imprisonment. The affair is still *sub judice*, but in any event there remains the interesting point as to the degree of incapacity that may certainly be occasioned by any given degree of visual defect.

The forces of "Temperance" — or rather of "Total Abstinence" — in this country have undoubtedly attained many desirable results, but backed up by the enthusiastic — one might almost say fanatical — eloquence of Sir Victor Horsley and Prof. Sims Woodhead, and the not-too carefully-considered remarks of Sir Frederic Treves, they threatened to hang the poor dog to whom they had given the bad name. But the faithful dog was not to die without an effort to save him, and so there appeared in the *Lancet* a manifesto for the exact wording of which several of the distinguished signatories hastened to disclaim responsibility.

Nevertheless, they did good service in arresting the idea, fostered by the Temperance party, that "Alcohol" was at all times and in all circumstances not only useless but actually harmful. Sir William Bennett, Sir I. Crichton Browne, Sir Dyce Duckworth, Sir William Gowers, Sir T. McCall Anderson, Professor Haliburton, Jonathan Hutchinson, Robert Hutchison, Edmond Owen, Pye-Smith, Frederick Roberts and others lent the weight of their names to a very moderate statement of the views of the profession as to the value of alcohol within well defined limits; a value not to be gainsaid by the evils of excessive consumption, however deplorable. It is evident that the signatories were unwilling to see the cause of temperance weakened by the assumption of an untenable position.

St. Mary's Hospital has for a long time been in the unfortunate position of possessing a magnificent new block of wards and theatres they have been unable to use for want of funds. They have now done Science and the Profession a service by putting the space at the disposal of Sir Almroth Wright who is organizing research — particularly in connection with "Opsonins" — on a considerable scale. Professor Wright is so enthusiastic and unselfish an investigator that he can always attract as many assistants as he can want and we may well look for rich results.

Pathological research in England has sustained a grave loss by the death of Dr. Allan Macfadyen who fell a victim to Science a few weeks ago through accidental infection in the laboratory by Malta fever. Until a year ago Dr. Macfadyen was head of the Bacteriological Department of the Lister Institute, and it was there he commenced the important work on "endotoxins" which was beginning to yield such good fruit when he untimely died. The discovery of liquid air and its practical application provided him with a method for extracting the juices of bacterial cells without destroying their properties. He demonstrated that at the temperature of liquid air or hydrogen, frozen bacteria can be triturated, and the extracts thus obtained from virulent strains prove to be intensely toxic. Latterly he had been able to show that the serums of animals immunized against these endotoxins possess curative properties. Cholera, plague, Malta fever, typhoid, pneumonia, all have given encouraging results. Much of his other and earlier work was of enduring worth; that on yeast zymase in particular being important in its bearings on many subsequent researches.

Writing as I do, upon the eightieth anniversary of Lord Lister's birthday, I cannot forbear mention of the proposal to celebrate the occasion by the publication of a collected edition of his papers. The names of the distinguished members of the profession and of others eminent in science in all parts of the world, who have signified their active approval of the project, make a testimonial no man could view but with pride.

The idea is not only gracious in conception, but pregnant with interest, as an historical and logical presentment of the origin and development of a scientific observation, through trial stages to perfected practical application; as a means of orientation to generations who, born into the new régime, will be able but dimly to grasp the magnitude of the advance; and lastly as a stimulus to all who daily employ the fruits of labors they honor without always fully appreciating. C.

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.

Resolutions Regarding Fees for Life Insurance Examinations

Wollaston, Mass., April 16, 1907.

Mr. Editor: At an adjourned stated meeting of the Norfolk South District Medical Society held in Boston, April 4, 1907, the following was unanimously voted:

Whereas, The New York Life Insurance Company, the Mutual Life Insurance Company of New York, and the Equitable Life Assurance Society of the United States have each and all announced that for an examination of an applicant for less than $5,000 insurance they will pay only the sum of three (3) dollars; and

Whereas, These organizations have declared that they shall expect for the reduced fee an examination as thorough and accurate as they received for the old fee of five (5) dollars, therefore

Resolved, That we, the Fellows of the Norfolk South District Medical Society (comprising the Fellows of the Massachusetts Medical Society residing in the city of Quincy and the towns of Braintree, Holbrook, Randolph, Weymouth, Hingham, Cohasset and Hull), declare that the dictation of fees to the medical profession by outside corporations and individuals is derogatory to the medical profession and is therefore disapproved.

Resolved, That we refuse to accept the new schedule of fees offered by the above-named organizations so far as applies to examination for less than five-thousand-dollar policies, and in the future shall make physical examination and chemical examination of urine for albumin and sugar for not less than the old fee of five (5) dollars.

Resolved, That the Fellows of this society who may have already acceded to the demands for reduced fees immediately notify these companies that, in accordance with the vote of this society, they will be obliged in the future to charge a fee of five dollars for each physical examination and chemical examination of urine for albumin and sugar.

Resolved, That these resolutions be entered upon the records of this society, that a copy of the same be sent by the secretary to the New York Life Insurance Company, the Mutual Life Insurance Company of New York, and the Equitable Life Assurance Society of the United States; that a copy also be forwarded to the Kentucky State Medical Association, to each District Medical Society in the State of Massachusetts, and also be furnished to the Boston Medical and Surgical Journal for publication.

Chas. S. Adams, M.D.,
Secretary.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 13, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,517	449	Quincy	4	2
Chicago	717	214	Waltham	12	1
Philadelphia	—	—	Gloucester	4	2
St. Louis	—	—	Pittsfield	9	2
Baltimore	227	55	Brookline	9	—
Cleveland	—	—	North Adams	7	0
Buffalo	—	—	Chicopee	8	3
Pittsburg	—	—	Northampton	8	0
Cincinnati	—	—	Medford	8	1
Milwaukee	—	—	Beverly	10	1
Washington	—	—	Hyde Park	0	—
Providence	79	24	Newburyport	—	—
Boston	203	48	Leominster	4	—
Worcester	69	16	Melrose	3	0
Fall River	32	13	Woburn	—	—
Cambridge	31	10	Marlboro	1	1
Lowell	47	11	Westfield	3	1
Lynn	20	3	Peabody	—	—
New Bedford	29	6	Revere	3	1
Springfield	34	5	Clinton	5	1
Lawrence	23	5	Attleboro	3	0
Somerville	14	3	Adams	4	2
Holyoke	20	9	Gardner	—	—
Brockton	15	2	Milford	—	—
Malden	5	1	Weymouth	3	1
Salem	20	5	Framingham	—	—
Chelsea	9	2	Watertown	3	2
Haverhill	10	3	Plymouth	—	—
Newton	12	2	Southbridge	2	1
Fitchburg	13	3	Wakefield	—	—
Taunton	19	2	Webster	—	—
Everett	6	2			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED APRIL 10, 1907.

BANKS, C. E., surgeon. Granted leave of absence for one month from about April 19, 1907. April 5, 1907.

COBB, J. O., surgeon. Granted leave of absence for one month, or so much thereof as may be necessary, on account of sickness. April 6, 1907.

WERTENBAKER, C. P., surgeon. Granted leave of absence for one day, April 11, 1907. April 6, 1907.

STIMSON, A. M., assistant surgeon. Granted leave of absence for seven days from April 6, 1907, under Paragraph 191 of the Service Regulations.

ROBERTSON, H. McG., assistant surgeon. Directed to proceed to Philadelphia, Pa., for special temporary duty, upon completion of which to rejoin his station. April 5, 1907.

SALMON, T. W., assistant surgeon. Granted leave of absence for one day, March 2, 1907, under Paragraph 191 of the Service Regulations.

WARD, W. K., assistant surgeon. Granted leave of absence for two days from March 20, 1907, under Paragraph 191 of the Service Regulations.

ASHFORD, F. A., assistant surgeon. Granted leave of absence for one day, March 2, 1907, under Paragraph 191 of the Service Regulations.

FROST, W. H., assistant surgeon. Granted leave of absence for two days from March 30, 1907, under Paragraph 191 of the Service Regulations.

KASTLE, J. H., chief of division of chemistry, hygienic laboratory. Granted leave of absence for nine days from April 11, 1907. April 10, 1907.

BUONOCORE, E., acting assistant surgeon. Granted leave of absence for fifteen days from Jan. 23, 1907, on account of sickness. April 6, 1907.

DELGADO, J. M., acting assistant surgeon. Granted leave of absence for six days in March, 1907, under Paragraph 210 of the Service Regulations.

DUKE, B. F., acting assistant surgeon. Granted leave of absence for three days from April 10, 1907. April 4, 1907.

GRIFFITTS, T. H. D., acting assistant surgeon. Granted leave of absence for twenty-one days from April 12, 1907. April 9, 1907.

KENNARD, K. S., acting assistant surgeon. Granted leave of absence for one day, March 8, 1907, under Paragraph 210 of the Service Regulations.

SCHWARTZ, LOUIS, acting assistant surgeon. Granted leave of absence for two days, March 3 and 10, 1907, under Paragraph 210 of the Service Regulations.

WATTERS, M. H., pharmacist. Granted leave of absence for thirty days from April 1, 1907. April 8, 1907.

MEGAW, HERSCHEL, pharmacist. Directed to proceed to Boston, Mass., reporting to the medical officer in command for duty and assignment to quarters. April 4, 1907.

APPOINTMENT.

MEGAW, HERSCHEL. Appointed a pharmacist of the third class April 3, 1907.

BOARD CONVENED.

A board of medical officers was convened to meet at New Orleans, La., April 9, 1907, for the examination of an alien immigrant. Detail for the board: Surgeon J. H. White, chairman; Passed Assistant Surgeon R. L. Wilson; Acting Assistant Surgeon J. T. Scott, recorder. April 8, 1907.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING APRIL 20, 1907.

J. D. GATEWOOD, surgeon. Ordered to additional duty in the Bureau of Medicine and Surgery, Navy Department.

D. N. BERTOLETTE, medical director. Sick leave further extended three months.

O. H. DELANCY, passed assistant surgeon. Ordered to Naval Medical School Hospital, Washington, D. C., for treatment and observation.

J. C. DOWNEY, assistant surgeon. Granted leave for one year from April 15.

J. H. MCGUIGAN, pharmacist. Granted sick leave for three months.

R. SPEAR, surgeon. When discharged from treatment at the Naval Hospital, Mare Island, Cal., ordered home and granted sick leave for two months.

APPOINTMENTS.

HASKET DERBY, M.D., has been reappointed a trustee of the Children's Institutions for a term of five years.

FRANCIS J. KEANY, M.D., has been reappointed a trustee of the Boston City Hospital for a term of five years.

MR. HERBERT F. PRICE has been appointed a trustee of the Consumptives' Hospital for a term of five years.

SOCIETY NOTICES.

AMERICAN ACADEMY OF MEDICINE. — The thirty-second annual meeting of the American Academy of Medicine (specializing in medical sociology) will be held at the Hotel Dennis, Atlantic City, on Saturday, June 1, and Monday, June 3, 1907.

MEDICAL MEETING AT BOSTON MEDICAL LIBRARY. — Wednesday, May 1, at 8.15 P.M. Subjects: "Hydrophobia and its Prevention," Dr. Charles P. Sylvester; "Rabies: Diagnosis and Prevention," Dr. Langdon Frothingham; "Rabies: Its Prevalence and Prevention," Dr. Austin Peters.

THE PSYCHICAL TREATMENT OF NERVOUS DISORDERS. LECTURE BY DR. LEWELLYS F. BARKER. — Dr. Lewellys F. Barker, of Johns Hopkins University, will speak on "The Psychical Treatment of Nervous Disorders," before a general audience at Emmanuel Church, Newbury Street, Boston, on Wednesday evening, May 1, at 8 o'clock. Physicians are cordially invited to attend.

SUFFOLK DISTRICT MEDICAL SOCIETY. — Annual meeting, Saturday, April 27, 1907, 8.15 P.M., Boston Medical Library. "A Series of Typhoid Outbreaks Caused by a Chronic Bacillus-Carrier," by Geo. A. Soper, Ph.D., of New York. "A Recent Outbreak of Typhoid Fever Due to Infected Milk," by Geo. B. Magrath, M.D. Election of officers. Refreshments after the meeting. L. R. G. CRANDON, M.D., *Secretary*.

RECENT DEATHS.

The death of DR. JUNIUS F. SMITH, of Brookfield, Conn., is announced, death resulting from pneumonia. Dr. Smith was forty-two years old, a prominent physician in the section in which he lived, and representative from his town in the present General Assembly.

DR. JUSTIN L. BARNES, of New York, a well-known specialist and one of the surgeons to the Manhattan Eye and Ear Hospital, died on April 13. He was graduated from the medical department of the University of the City of New York in 1885.

DR. HENRY DE WITT JOY, of New Brighton, Borough of Richmond, New York City, died suddenly on April 15. He was born in New York in 1841, and was graduated from the College of Physicians and Surgeons there in 1866. He practised for seventeen years at Sag Harbor, Suffolk County, N. Y., after which he removed to Staten Island. He retired from general practice about five years ago, but continued to do some consulting work.

Original Articles.

GALL BLADDER DISEASE WITH SPECIAL REFERENCE TO ITS GASTRIC SYMPTOMS.*

BY PHILIP KING BROWN, M.D., SAN FRANCISCO, CAL.

The frequency with which inflammatory and mechanical irregularities of the organs in the right hypochondrium cause symptoms which attract attention, particularly to the stomach, and the brilliant results of surgery in many of these conditions, lead me to report a few cases which have come to operation and which I have selected to illustrate types of the underlying trouble.

The relation of cancer of the gall bladder to gallstones is of so great importance that it seems reasonable to accede to the position taken by the surgeons that gallstone manifestations of any kind, however slight, are indications for surgical treatment. It is true that nature's method of getting rid of the stone is frequently a satisfactory one. In addition to stones being passed by the ducts into the intestinal tract it is not infrequently the case that a perforating ulcer may release the stones from the gall bladder, and if the process has been slow, it is sometimes the case that the adhesions to the stomach, duodenum or the hepatic flexure of the colon have allowed the stones to ulcerate through and be discharged by the bowel without giving trouble. The chance of such an escape is so small, however, the symptoms attending adhesions between the gall bladder and adjacent organs are so serious, and the complications of interrupted passage of stones through the ducts so dangerous and so difficult of surgical treatment, that the operation for the removal of stones known to be present in the gall bladder seems relatively simple and an absolutely reasonable procedure.

Of the usual symptoms associated with gallstones, the chill, fever, pain and jaundice are often so characteristic that no doubt as to diagnosis exists, but intermittent fever has been associated with adhesions of the gall bladder, as well as have chills, irregularly recurring colic, hepatic enlargement, tenderness in the gall bladder region, enlargement of the spleen and dilatation of the stomach. The association of all these symptoms at once with a simple case of adhesions not complicated by stone occurred in one of my patients operated upon with the idea that she must have gallstones. A contracted gall bladder was discovered containing a thick, viscid, dark-green bile. In another case further symptoms of absence of HCl and progressive emaciation with retention of food in the stomach led to the consideration of a cancer of the pylorus, in spite of the absence of palpable tumor. At operation, a dense mass of adhesions was found, due to the ulcerating through of stones from the gall bladder to the duodenum, and the establishment of three permanent fistulæ maintaining this connection. This case is abstracted because of the interest of these symptoms.

* Read before the Marin County Medical Society, Jan. 19, 1907.

Case G. H. Male, age seventy.

May 8, 1903. History of long-lived family. Has not been ill since childhood, and does not remember ever having any stomach symptoms or abdominal disturbance of any kind till the present trouble began. Has lived a healthy, simple, out-door life. Best weight 190. Present weight 140. Loss has occurred within a year. Began to be somewhat constipated a year ago, and occasionally to vomit after he had been in bed some little time at night. Vomitus very sour. Thought nothing of it. Four months ago he grew suddenly very much worse with marked constipation and very frequent vomiting. Pain in right hypochondrium with no special relation to eating. No cause is attributed to this sudden change, but it is evident from careful questioning that he had been steadily losing ground even before this. Vomiting has been a daily occurrence since, and he has occasionally vomited a little blood. Vomitus always sour and yeasty, frequently containing food taken the day before. No jaundice. Occasional chills. Pain never severe or paroxysmal. Thinks he has had fever. Is growing weak very fast.

Examination of the abdomen shows no tumor, but a large and tender liver, and a very much distended stomach. The colon is also distended along its entire course. No HCl. Lactic 70. Pus and B. o. bacillus in vomited material. Hemoglobin 50%. Temperature 97°, pulse 80. Gall-bladder region not especially tender and no tumor could be made out. After lavage the empty stomach reached to the umbilicus.

The sudden onset of grave stomach symptoms in an elderly person with no earlier history of stomach trouble and with rapid loss of weight arouses always a suspicion of cancer. This was not the case, however. The dense adhesions seemed of long duration, but the beginning of the local trouble can be only a matter of speculation.

In connection with fistulæ from the gall bladder, Naunyn tabulates 43 cysto-duodenal fistulæ in 10,866 autopsies; 19 fistulæ between gall bladder and duodenum; 16 cystoduodenal fistulæ between gall bladder and colon; 5 fistulæ between common duct and duodenum; 1 fistula between gall bladder and stomach; 1 fistula between gall bladder and liver; 1 fistula between bile ducts themselves.

The presence of a tumor mass in connection with gall-bladder disease presents considerable difficulty in many cases in diagnosis of the nature of the lesion and the parts involved. A cancer of the stomach or duodenum may arise from the site of an old ulcer, which may have left the involved part adherent to the liver or gall bladder from adhesions below the floor of the ulcer. In the case of cancer of the stomach we would have symptoms of pyloric obstruction, with dilatation, absence of HCl, emaciation and probable pain and tenderness in the region of the tumor, but the tumor probably could not be felt, or if it could, its connection with the liver would make its origin obscure. Gastric ulcer generally, although moving downward with inspiration, can be held down by pressure with the fingers. When attached to the liver this is impossible. The age of the patient, the previous history and the duration of the acute symptoms give pointed information, as will also examination of the stools for occult blood according to the Boas-Weber methods. In cancer of the stomach, repeated examination of the stools after diet free from

meat will give a positive evidence of occult blood in the vast majority of cases. Emaciation, cachexia and dilatation may follow simple adhesions from ulcer as well as cancer, and blood may be found in the stools. Yet cancer may be positively excluded by the age of the patient, as well as by the presence of HCl in the stomach, although even this may be absent without cancer. This condition is illustrated by the following case:

R. R. Male. Age twenty-three.

Dec. 5, 1905. Patient gives a history of catarrhal jaundice of two months' duration, eight months ago. He had no other symptoms at the time except fever and extreme depression. Has never felt quite well since then, and has lost flesh and color steadily. Has had pains in his gall-bladder region. Slight temperature at times. A great deal of gas, which he has belched up, and distress in the stomach, beginning two or three hours after eating. The pain is referred to the back and to the right shoulder. He has not been jaundiced since the first attack. Is aware that certain kinds of food affect him worse than others. Is unable to do much work and has no appetite. Is afraid to eat when he does feel hungry. Patient has never had typhoid, and there is no history of any unusual gastric disturbance earlier than the jaundice.

Examination. — Temperature normal. Pulse 84. Heart tones clear and quite forcible, due probably to his athletic tendencies. Stomach reaches nearly to umbilicus. There is no tenderness anywhere except over the gall-bladder region. Kidney not felt. Feels much nausea when pressure is put upon this region. No local tenderness in the stomach. No tumor made out. Stomach analysis showed total acidity of 4. No free HCl. No blood.

Patient operated on one month later after two weeks of extreme suffering, worse at night, during which period he often walked the floor for hours. Lost 15 pounds in this time.

Operation revealed an adhesion of the distal end of the gall bladder to the duodenum about 5 cm. from the pylorus. Beneath the adhesion was an ulcer of the duodenum. No gallstone found. Gall bladder seemed perfectly healthy, except at the site of the adhesions.

Tumor of the gall bladder, as pointed out by Courvoisier, is absent in obstruction to the common duct from gallstones, where we might ordinarily expect it to be present, and is present when obstructions are due to pressure from the outside. In 35 of his cases, 17 of which were due to stones, the gall bladder was found contracted in 13 and normal or dilated in 4, whereas in 18 cases of obstruction due to external pressure dilatation occurred in 16. This observation, made many years ago, has been confirmed by numerous observers in a large number of cases, so that it is generally understood that if the gall bladder is enlarged from an obstruction of the common duct, in fully 90% of cases the obstruction is outside the duct. The converse is not so striking, for the gall bladder has been found to be contracted in only 60% to 70% of the cases where the obstruction was due to stones in the common duct. Nevertheless, the possibilities are sufficiently marked to warrant careful consideration of this point in a differential diagnosis.

Tumor of the gall bladder from an empyema may occur without local pain or jaundice, and even without much fever. It may develop so gradually, with such vague symptoms, that only a careful examination of the patient reveals its presence.

A case showing chiefly gastric symptoms illustrates this.

G. Y. Female. Age thirty-six.

Jan. 4, 1905. Stomach trouble for two years. Began while visiting various mineral springs. Bad food and loosening waters. Noted a pain just below sternum in epigastrium, and extending through to back. Tender on pressure also. Slightly relieved by taking soda water. Came on at least four hours after eating. Lasted all night. Didn't double her up that time, but twice since she has had it so bad that it caused writhing with pain. Vomited in both of these attacks, but in no other. Isn't even nauseated with ordinary attacks. Was somewhat relieved by vomiting those two times. The attacks come on now rather more frequently at night. Has great deal of gas. After first attack was free from them for three weeks. Began again at night and lasted three nights, but with considerable relief in daytime while in erect position. Isn't able to say whether she noted relief of pain if she lay down in daytime. Could eat milk, toast, soft eggs, broth, oysters, white meat of chicken occasionally. Indigestion and pain at night, and at times in daytime if she ate sweets, fruits or seasoned food.

Several times, both by day and night, patient has noticed a sudden feeling of weakness which she has connected with her heart condition, and yet she has no objective symptoms referable to the heart. She has noticed no blood or black material in stools, but hasn't observed them carefully. The vomiting attacks have not been accompaned by blood.

Examination. — There is no tenderness whatever over the gall bladder, even on deep pressure. Stomach is quite large to within 1 cm. of umbilicus, and much distended with gas. No kidneys felt. No McBurney tenderness, and no tenderness now at the point where she feels the great pain during attacks. In the last attack she has had more pain through the right side, but always before, the pain and tenderness were just under the ribs to the right of the median fine.

Jan. 21. On a diet of milk for a week, patient lost a good deal of flesh and had no pain in the stomach and only a very slight pain under the left scapula. She was fed by rectum the first four days, not even water being taken by mouth. For two months on careful diet, pain ceased.

March 27. Some chocolate creams eaten one afternoon were followed by pain in the stomach and through to the back. This grew much worse. She vomited a number of times. Pain was not relieved by soda solution or vomiting or Dover's powder, of which she took 20 grs. Two days later her temperature was up to 100, and then it ranged between 99½° to 101½° for two more days. She has had absolutely nothing by mouth except a few swallows of hot water. Pain has been paroxysmal in character, and has been confined to the *left side of the back* under the angle of the scapula and to the area at the lower border of the right ribs, from the gall bladder around to the midaxillary line. Tenderness here has been extreme, and the pain in this region is especially paroxysmal, so that it looks unlike an ulcer of the duodeum and more like gallstone. There was no swelling, and no increased dullness. Pulse has never been above 78, and is most of the time below 70, so that a local peritonitis from a perforated ulcer is excluded. The pain has required 7 grs. of opium by rectum for its relief.

Patient's temperature fell steadily to normal on the third day. It rose to 100° two nights later, at which time she had a return of nausea, which had grown steadily better for thirty-six hours. Patient had been allowed to take fluid by mouth since the morning before, and although the nausea had now ceased, she complained a good deal of indigestion.

April 1. Patient passed a comfortable day, retaining without trouble 8 oz. of peptonized milk every two hours. The orange juice and white of egg caused her to have a lump in her throat and was therefore discontinued. The temperature, however, rose slowly, until it was 101°. She had occasional sharp twinges of pain in the gall-bladder region, and at one time a pain lasting five minutes.

The leucocytosis next day was 11,000. Pulse did not rise above 70, but it was decided to operate, as the gall bladder could be constantly better and better outlined, as it increased slightly in size.

About 8 oz. of fluid pus, without odor, removed by aspiration. After the fluid had begun to flow into the barrel of the needle, it began suddenly to be quite blood-stained. Blood-staining was also diffuse, giving it an even tinge. Whether this was due to its being thoroughly mixed in being sucked up through the needle, it is impossible to say. After the needle was removed the opening was enlarged, and again pure pus came out, followed by the bloody pus. There was a good deal of edema about the gall bladder, and a large number of adhesions, so that no further operative interference was considered. No gallstones found. Examination of bile tract impossible on account of adhesions.

Questions at issue in considering the case were whether we might not have to deal with an ulcer at the pylorus, or even in the duodenum, which had perforated and caused a local peritonitis. Against this was the tenderness of the liver, the peculiar character of the spasmodic pain, and, later, the round tumor mass.

April 13. The patient's pulse and temperature remained normal after operation. There has been no nausea and no stomach disturbance whatever, even though the patient ate some toast and ice cream.

May 2. Patient returned to Lane hospital to-day for a removal of the gall bladder, which has been secreting a muco-purulent material since it was drained. She complained of a persistent pain immediately to the right of the drainage tubes, but otherwise no induration or swelling. There has been no temperature since the operation except the day she was moved home, and the pulse rarely rises above 60.

May 3. Patient operated on this morning by Dr. Stillman for obliteration of the gall bladder. Upon examination it was found that cicatricial tissue prevented a dissection of the mucous membrane, so that an attempt had to be made to remove the organ. This elicited the fact that there was an hour-glass contraction of the gall bladder, in the lower end of which was confined a stone, necessitating the opening of the peritoneal cavity and the complete removal of the gall bladder.

May 6. Patient vomited excessively for the first two days after the operation and required a large amount of morphine for the pain.

Jan. 6, 1905. Stomach analysis; t. a. 30; free HCl 18; decided trace lactic.

Jan. 29, 1906. Stomach analysis; t. a. 9; free HCl 3; lactic present; faint reaction propep. and peptones; erethro dextrine and maltose present.

Feb. 6, 1906. Patient has been having a good deal of stomach disturbance in the early hours of the morning. On account of low acidity, patient was given dilute HCl. for ten days past, which relieved her stomach symptoms very decidedly. There has never been any pain, nausea or evidence of ulcer since the second operation.

Relative stenosis of the pylorus from adhesions doubtless played a large part in the symptomatology, which are likely to give trouble if they reform, as is most probable.

An acute inflammation in the gall bladder may also be indicated merely by temperature and gastric symptoms, and doubtless occurs many times in the course of typhoid fever without being detected in any way. The following case, occurring during convalescence from typhoid, illustrates how insidious the onset of such trouble may be.

F. F. B. Male. Age forty.

Nov. 4, 1902. Patient passed through a typical, mild typhoid fever beginning eight weeks ago. Diagnosis by physical examination and Widal test. Nothing unusual about the case except the absence of any very high fever, and the extreme degree of constipation, it being necessary to move the bowels with enema every other day. An afebrile period of nearly a week followed the five weeks' typhoid, when the patient had numerous chilly sensations one day and slight irregular fever thereafter, which has continued ever since with intermissions of a day or two, generally following profuse movements of the bowels, the result of medication. Early in the attack a tenderness appeared across the epigastrium. It was a vague, irregular pain, described as extending clear across the epigastrium, not located at any particular point, slowly growing worse and becoming localized slightly more on the right of the median line, the patient himself having to hunt about considerably to find the most tender point. In his past history there have been almost no illnesses. Never has had any pain in the side or jaundice. Patient had occasional appearance of slight jaundice after this pain began, but experienced no increased pain upon eating; in fact, was getting to relish certain food very much, and to look forward to it.

Four days ago he began vomiting, and has vomited continuously since, especially at night, when he has appeared to vomit everything. Enough medicine has been retained to keep the bowels moving freely, although after several movements of usual size, a period of constipation generally came. Large quantities of bile are said to have passed with the stools. The character of the vomitus at present is a clear, dark bottle-green fluid, alkaline in reaction. The patient has had no headache whatever. Seems bright and clear-headed. Tongue coated. Lungs negative, although he has had a slight cough for three or four days. Heart sounds clear; rate and force regular, but action rapid; probably nervous, as the rate last evening without stimulation was 84. Spleen to the costal border and easily felt; slightly tender. Liver slightly enlarged 14 cm., dullness in nipple line and extending well below the costal border. No tumor felt in the gall-bladder region, but a distinct increased spasm on the right side; more as the epigastrium is approached. The right epigastric region seems more prominent than the left. No tympany. Stomach not enlarged. No tenderness elsewhere in the abdomen. Patient locates the chief tender point in slightly different places at different times, but generally to the right of the median line and just where the hepatic border begins.

Diagnosis of cholecystitis, the vomiting due to regurgitation of the bile and gastric irritability.

The patient was seen two and four days later and a distinct tumor in the gall-bladder region was made out,

Temperature by rectum 103°. It was necessary to feed him by rectum for five days, as the stomach could retain no food. Condition subsided without operation, the whole febrile process from the gall-bladder condition having lasted twenty-four days.

No subjective or objective symptoms referable to gall bladder when examined two years later.

In both of these cases, stomach symptoms were of paramount importance, and of a nature to direct the attention at once to trouble somewhere in that vicinity. In the first case, the history of pain after eating had led early in the course of the trouble to the consideration of possible ulcer of the stomach. The gall bladder was not palpable, and *the pain located in a single spot*, apparently to the left of the median line. It must be remembered that this is quite characteristic of gallstone pain in women, as is also its occurrence at night. A very careful diet relieved the pain, and any indiscretion in diet was apt to be followed, especially at night, by severe pain. The nocturnal pain was suggestive, but its constant association with errors in diet and its occurring a number of hours after eating, made considerable doubt as to whether we were dealing with an ulcer beyond the pylorus, or with gallstones. There had never been pain or tenderness in the gall-bladder region, jaundice, chills with acute onset of fever, or true gallstone colic. In the second case, the slight rise in temperature, distaste for food, nausea and constant gastric unrest, led me to examine carefully the gall-bladder region where a small tumor mass was finally made out. This increased in size for several days and there was local tenderness. The condition subsided without operation.

Cancers of the gall bladder are so frequently not palpable that they present, at times, great difficulty in diagnosis. Indeed, we have all seen cases coming to autopsy where there were secondary involvements of many organs without the correct diagnosis having been made. One case suffices to illustrate this.

O. W. Male. Age forty-four.

Gave a history of having been thrown from a street car and receiving a severe injury to his right side in the neighborhood of the liver. He was carried to a hospital, and was dead in two months. I examined him one week before death. While the symptoms were made obscure by the doubtful history given in this case, owing to the desire on the part of the patient to obtain redress from the street railroad, the difficulty in accurate diagnosis is none the less strikingly illustrated. He claimsto have been perfectly well at the time of the accident. He certainly failed very rapidly from the time of his admission to the hospital, but how much failure there had been before this it was not possible to say. There was a very slight jaundice, loss of weight and increasing cachexia. These latter symptoms were easily accounted for by the *persistent nausea and vomiting*. A varying temperature, at times slightly above normal, but most of the time below. The stomach was markedly dilated. The liver was enormously enlarged, and as emaciation advanced its surface could be palpated easily, but the enlargement was uniform and no surface irregularities could be made out through the abdominal wall. There was a history of syphilis, and no history could be obtained of gallstones. As the spleen was also enlarged and the glands palpable, the diagnosis of syphilis was entertained. Patient was unable to retain much of anything on the stomach after the first few days. The vomited material contained a trace of free HCl. The pain was so great in the right hypochondrium that he required morphine. The possibility of cancer was entertained but rejected. At autopsy the gall bladder was found contracted and without stones. There was a small tumor mass, the size of a quarter and about two and one-half times thicker, near the neck of the gall bladder. *Dense adhesions connected this organ with the pylorus.* The liver was a diffuse mass of secondary tumor, and there were metastases in the lung. The microscopic examination was interfered with as the autopsy was done the day before the fire and the material was lost.

In regard to the diagnosis in this case, the symptoms of syphilis of the liver are not always plain, although this organ is very markedly affected by syphilis. The accompanying cirrhosis may be either hypertrophic or atrophic, although the latter form is more common in adults. The deep depressions usual in syphilitic cirrhosis could not be made out in this case. Large projecting nodules due to irregular contraction in cirrhosis might have confused the diagnosis with secondary cancer, as might also true gummata which occur commonly in this organ. Jaundice is present in only about one third of the cases. The possibility of an abscess of the liver following the accident had been entertained, but as the liver enlargement extended downward, which is not usually the case in abscess, and as the enlargement was rather uniform, this diagnosis was ruled out. Then, too, the spleen was enlarged, which is never the case in abscess of the liver, except from pyemia or pylephlebitis. The constant pain suffered by the patient is characteristic of syphilitic affections.

The differentiation between the minor symptoms of gallstones and a relative stenosis of the pylorus due to adhesions between the gall bladder and that end of the stomach, is frequently impossible. Fink states that in 403 cases of gallstone colic, seen by him at Carlsbad, 94% showed gastric spasm without local hepatic pain or tenderness. As these were cases not necessarily coming to operation the possibility of adhesions causing most of the pain must be entertained, for it has been shown that adhesions occur with and without gallstones. It is doubtless true that there are a good many inflammatory conditions in the gall bladder which result in adhesions without stone formation having taken place. Typical attacks of colic and even chronic jaundice have been reported from simple adhesions. Meteorism and constipation may be important symptoms. Attacks of violent pain in the stomach simulating true angina, particularly occurring in people with heart lesions, may be due merely to adhesions of this character. The pain may even simulate gallstone colic, and has frequently led to operation where no gallstones were found but the symptoms entirely relieved by the breaking up of adhesions. To illustrate this condition the following cases are cited:

C. C. Male. Age forty-two.

Aug. 12, 1905. Complains of pain in the left mammary region, just below the rib border. May come on at any time during the day, and seems to shoot upward toward the heart. Pain is deep-seated. There is no tenderness on pressure with it. He has a marked depressed feeling, and has gas associated with it, which he feels moving freely.

Patient has a history of typhoid fever and malaria as a boy. Except for these things his general health has been good. Has exercised actively for many years. For last five months has had no exercise, prior to that of outdoor duties.

Has lost in weight from 270 to 188 in six months. During this period he has been growing in nervousness, and has not slept as well as formerly. Appetite good. Has distress from any food that he eats. The distress is due to the gas and feeling of pressure, and depression. Has a sick feeling in the stomach which takes away his appetite at times.

Examination. — Patient has large, pendulous abdomen. Stomach much distended with gas. Liver tender in the gall-bladder region. He seems to have shooting pains to the point where he experiences pain whenever the gall-bladder region is pressed upon, and there is no tenderness at all where he feels the pain when he is walking about. Stomach reaches to within three and one-half centimeters of the umbilicus, and is not tender anywhere, although much distended. There is slight discomfort when McBurney's point is pressed upon.

Further questioning elicits the fact that the patient is subject to bilious attacks with headaches and constipation.

Heart condition is one of extreme muscular weakness. First tone is scarcely heard at the apex. Heart is apparently pushed up by large liver and stomach. Spleen is not enlarged.

Stomach content shows t. a. 52; free HCl 36; comb. HCl 12; trace lactic; propeptones, peptones, dextrin and maltose present. Well digested; little mucus.

The tenderness in the gall-bladder region, the slight radiating pain, the distension of the stomach, the normal gastric content after a test meal, the absence of definite symptoms of gallstones, all seem to point to a relative obstruction to the outlet of the stomach, causing a good deal of gas collection, and pressure pain, and due probably to adhesions with the gall bladder. The absence of any history of gall-bladder trouble, and any marked tenderness in that region, while not excluding gallstones, made them seem less possible. Operation showed adhesions binding the distal termination of a grayish-colored gall bladder to the beginning of the pylorus. The cystic duct was also adherent to the pylorus.

Mrs. A. Age thirty-four.

Stomach trouble since early girlhood. Nausea and vomiting after lunch or dinner almost every day recently. Can take milk exclusively without this symptom. Bloats as soon as she eats. Gnawing feeling in the stomach when hungry. Stomach is sensitive to touch after eating for several hours. No blood in the vomitus or in the stools.

On examination the stomach was found well dilated and the transverse colon well down below the umbilicus. Tenderness above the gall bladder. Several tender spots along the lower border of the liver increased with inspiration, and causing sharp, shooting pain from point of pressure to center at upper part of epigastrium. The stomach analysis showed diminished HCl.

The patient has an over-active thyroid gland, an organic heart lesion; mucous colitis; and questionable condition of right apex of lung.

The diagnosis of adhesions of the gall bladder was made and dense adhesions were found at operation. These were relieved, but the connection with the pylorus was re-established, and a gastro-enterostomy was done later. The end result has never been entirely satisfactory, as bile frequently regurgitates into the stomach.

I am convinced, from my experience in several such cases which I have observed two or three years after the operation, that a mistake is made in not resecting the gall bladder because of the marked tendency of these adhesions to recur. In the second case the patient has been operated upon three times, and it is quite plain that the gastro-enterostomy is not sufficient to relieve the spasm in the stomach, and that the reformed adhesions tend to contract the new opening.

Hypertrophy of the pylorus may result from the presence of gallstones, and the constant spasmodic contraction of that end of the stomach. Such cases have been operated on for stricture of the pylorus supposed to be due to tumor. Boas reports two from the literature, and adds a third where the hypertrophy was so irregular that operation was performed for the relief of supposed cancer only to find on resection of the pylorus that no change of the mucous membrane was apparent. Such a case fell into my hands some time ago. It presented the further complicating symptom of an absence of free HCl. Its history is as follows:

H. M. Age sixty-four.

Complains for a year past of gas in his stomach, constant soreness in the epigastric region, occasional attacks of vertigo, and loss of six pounds in weight.

Examination. — Riedel lobe, no hepatic or gall-bladder tenderness, but more resistance is noted over the upper right rectus. Several test meals showed no HCl, even after lavage and administration of it for some days. The stomach was only moderately enlarged, and the soreness complained of seemed to be from its distention with gas. As the stomach digestion did not improve, and the evidence of retention was only very moderate, a slight stricture of the pylorus was suspected, and considered due to adhesions to the gall bladder. Operation showed hypertrophied pylorus with spasmodic contracture, no adhesions. A single small stone was found in the gall bladder. This was removed and the gall bladder drained. A gastro-enterostomy was done, and now, eighteen months later, the patient has no return of the old symptoms.

A case illustrating the gastric conditions which frequently complicate gallstones, and emphasizing further the long history of stomach symptoms, is the following:

Miss A. S. Age forty-nine.

History of stomach trouble since early youth. Neurasthenia six years ago; weight at that time 105, now 150. Attacks resembling mucous colitis for many years. Stomach specialists here and abroad have diagnosed her trouble during the past thirty years as, — nervous dyspepsia, ulcer, hyperacidity, gallstones, catarrh of bowel, dilated stomach and neurasthenia. Knows she has had excess of HCl for four years past. One week before I saw the patient she had a decided pain in the right side of the abdomen high up, so severe that she could not walk. She has never been jaun-

diced and the pain did not resemble gallstone colic. Considered congestion of the bowel. When examined by me she had no temperature, pulse normal, heart and lungs normal, no jaundice. The rise of .3° in the temperature was considered nervousness from the examination. Floating kidney found on the right side reaching well down toward the pelvis. Below the rib border and extending well down below the costal margin was a tumor mass extending almost to the median line, and within 3 cm. of the umbilicus. It was tender on pressure and moved with respiration, and was evidently an enlarged gall bladder. Urine normal. No jaundice. Patient's condition improved rapidly, and she was sent to her home in New York one week later with a diagnosis of gallstones and a recommendation of immediate operation.

Operation some weeks later showed beginning cancer of head of pancreas, and 333 gallstones were removed from gall bladder.

The age of this patient at the onset of her trouble excluded cancer, and doubtless her years of trouble with her stomach were due entirely to the gallstones.

The gastric crises of tabes have been mistaken for gallstone disease and for obstruction of the pylorus. In the tabetic crisis jaundice does not occur. There is no tenderness of the liver. The tabetic pains are not necessarily associated with the night hours. The absence of food which influences gall bladder trouble does not alter a gastric crisis. Other symptoms of tabes would practically always serve to differentiate.

In connection with operations on cases of gall-bladder disease it must not be forgotten that as liver complications may be present it is essential to know the coagulation time of the blood. This may be reduced to one fifth the normal, leading to death from uncontrollable hemorrhage. A long course of treatment with the chloride or lactate of calcium will be necessary before such cases can be operated upon safely. The lactate apparently is as effective in most cases as the chloride, and has not the disagreeable taste or irritating qualities of the latter.

SAHLI'S DESMOID REACTION.*

BY H. W. CAREY, A.B., M.D.,
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From the Out-Patient Clinic of Dr. J. H. Pratt, Massachusetts General Hospital, Boston, Mass.

IN April, 1905, Sahli[1] published a method for determining the sufficiency of gastric digestion without the use of the stomach tube by means of what he called desmoid capsules. The principle of the method depends upon the fact proven by Schmidt,[2] that raw, uncooked, connective tissue is digested in the gastric juice but not in the pancreatic juice.

The capsules consist of pills of some substance which is readily absorbed and excreted in the urine or saliva such as methylene blue, salicylic acid or iodoform, inclosed in a rubber dam such as is used by dentists and tied with connective tissue in the form of raw, uncooked catgut. A uniform method in making these capsules is of much importance in obtaining constant results; the directions given by Sahli are as follows:

Methylene blue 0.05 gm. or iodoform 0.1 gm. is mixed with ext. glycerrhizae q. s. to make a pill 3-4 mm. in dimeter.

The rubber dam should be about 0.2 mm. thick and of light color. A piece of the rubber 4.0 cm. square is dusted with talcum powder to prevent the edges from adhering and wrapped about the pill then twisted, in this way completely closing it in a membrane of rubber. Care must be used not to cause too much tension of the rubber over the surface of the pill lest it become permeable; this can be avoided if only sufficient tension is made to make the rubber covering slightly shiny. The twisted pedicle of the capsule is closed by raw catgut size 00 which has been previously soaked in cold water until it becomes pliable. In winding the catgut about the pedicle three turns are made, each beyond the other, the first at such a distance from the pill as not to cause too much tension on the rubber. The catgut is tied in a square knot and the edges cut close. The rubber beyond the ligature is cut short, and in cutting it it is essential to prevent the edges from becoming adherent. The capsule is now complete and it should be placed in water to be sure that it sinks readily and is water-tight.

In carrying out the test the patient is instructed to swallow the capsule with or immediately after a full meal, preferably mid-day dinner, and cautioned not to bite or in any way injure it. The urine or saliva is collected at intervals and the time noted at which the indicator (methylene blue, salicylic acid or iodoform) appears.

If methylene blue is used, in the great majority of instances the urine is colored greenish blue, but occasionally it is excreted as a chromogen, so in cases where no color appears it is necessary to boil 10 cc. of urine with 1-2 cc. of glacial acetic acid which will bring out the green color in case the chromogen is present.

In testing for the presence of iodine a little chloroform is added to a few cubic centimeters of urine or saliva, then 1 cc. of diluted sulphuric acid (C. P.) and 0.5 cc. of 1% sodium nitrite solution are added and shaken. If iodine is present the chloroform takes on a rose color.

The presence of salicylic acid in the urine is demonstrated by precipitating the phosphates with a solution of the perchloride of iron, filtering and adding perchloride of iron to the filtrate which takes a violet color if salicylic acid is present.

When the capsule is taken at midday dinner, the reaction is considered positive if the indicator appears in the urine on the same day or in the first urine voided on the following morning, that is, approximately nineteen to twenty hours. A positive reaction means that the gastric juice contains sufficient free hydrochloric acid and pepsin to digest the catgut, liberate the methylene blue which is absorbed and excreted giving a greenish blue color to the urine.

In the table on pages 564 and 565 will be found the results obtained in 25 cases, in all of which there was evidence of functional or organic disease

* Read as the meeting of the medical society of the State of New York, January, 1907.

of the stomach. All but three of these cases were taken from the Out-Patient Department of the Massachusetts General Hospital in Boston in the medical service of Dr. J. H. Pratt to whom I am indebted for many valuable suggestions.

In each case the stomach contents were analyzed one hour after an Ewald test breakfast to determine the amount of free hydrochloric acid, total acidity and the presence or absence of enzymes and lactic acid in order that the desmoid reaction and chemical analysis might be compared. In most of the cases the tests were repeated.

It will be noted that methylene blue was the only indicator used, because the results of Alexander and Schlesinger showed that methylene blue was absorbed more quickly and gave more constant results than iodine or salicylic acid.

The time elapsing before the appearance of the indicator in the urine in normal cases varies with the capsule used, and in fixing what shall be considered a positive or normal reaction this must be taken into consideration. The materials used by the various men who have published their resuslt have not all been the same. This applies particularly to the catgut. In the cases reported by Kühn,[3] methylene blue appeared in the urine in from seven to twelve hours, in Kaliski's[4] series, from eight to nine hours, in the series of Alexander and Schlesinger,[5] from two to three hours and in the series here reported, five to eight hours. These variations in time indicate variations in the digestibility of the catgut. For this reason it seems advisable to determine in a series of normal cases what the normal reaction time is and then to regulate the time limits accordingly. Although Sahli has made twenty hours the time limit of a positive reaction it must be remembered that this applies only to those cases in which his capsules are used. In the series here reported the time limit is placed at sixteen hours, and when the reaction occurs later than this it is termed a delayed reaction.

Two other factors influence the reaction time, the rate of absorption and rate of elimination. Saito[6] has proven that methylene blue is absorbed from the intestine and not from the stomach. After ligating the pylorus in a dog a solution of methylene blue was introduced into the stomach and then the esophageal end was ligated. No reaction in the urine occurred. The capacity of the intestine for absorption therefore must be intact, for if it is impaired the reaction may be delayed.

The elimination of methylene blue through the kidneys is retarded in cases of advanced cardiac disease and nephritis. French writers have pointed out that after subcutaneous injection of methylene blue no reaction in the urine followed; in some instances, probably because it was not excreted through the kidneys. These factors are of little importance in the great majority of cases, but if they are suspected of being the cause of a negative reaction they may be excluded by using a plain methylene blue pill as suggested by Sahli.

The reaction is positive in some cases in which the stomach contents after an Ewald test breakfast contain no free hydrochloric acid. Taken after a full meal which stimulates the gastric mucosa to its utmost the capsule is under the most favorable conditions for digestion. It is exposed to the continued action of the gastric juice and by reason of its weight lies in contact with the gastric mucosa; consequently, it is in the position to measure more accurately than any other test the digestive efficiency of the stomach.

The Ewald test breakfast does not stimulate the gastric mucosa enough; the contents removed by the stomach tube measure only its minimum of efficiency, and their analysis determines only the presence or absence, increase or diminution, of certain ingredients at the particular moment of removal. Kaliski proved this clearly in one of his cases in which the test breakfast contained no free hydrochloric acid yet the desmoid reaction was positive. In the stomach contents removed three hours after a full meal free hydrochloric acid was present. Eichler reports similar cases.

In spite of the fact that Sahli called attention to this in his original communication most of those who have used the test have measured its accuracy by comparing it with the analysis of the test breakfast, whereas the comparison should be reversed.

Numerous experiments have been made in vitro to determine the possibility of some error in the basic principle of the test. Sahli suspected the possibility of catgut being digested by the pancreatic juice, but in the test tube no such digestion could be proven. The same result was obtained by Eichler,[7] Boggs[8] and Saito and in my own experiments.

The individual constituents of the gastric juice, hydrochloric acid, pepsin, lactic and butyric acids will not digest catgut.

Uhlich found that catgut would digest in a 1:400 solution of lactic acid plus pepsin in from eight to ten hours at 37.5° C. and I obtained the same result with a 1:100 solution of lactic acid and pepsin in five and one-half hours, the controls with pepsin and hydrochloric acid requiring two hours and forty-five minutes for digestion. Kühn, Kaliski and Alexander and Schlesinger, on the other hand were unable to digest catgut in lactic-acid-pepsin solutions, and Saito obtained negative results except in solutions containing too high a percentage of lactic acid to be considered physiological.

However divergent these results may be it must be borne in mind that with lactic acid and pepsin solutions the digestion is slow, and that when lactic acid is present in the stomach it is the result of fermentation and other acids; butyric and acetic are present also which inhibit digestion.

The action of the intestinal secretions upon the desmoid capsules has been studied by Saito, and his results were always negative with the individual constituents — bile, intestinal extract and pancreatic juice. But if the pancreatic juice is activated by an extract of the mucous membrane of the intestine, digestion of the capsules always takes place. I have obtained similar

results in repeating these experiments. When bile is added to the mixture of intestinal extract and pancreatic juice digestion still occurs but it is considerably delayed, over sixteen hours in the thermostat. If the time during which the capsule remains in the stomach be added to this a negative desmoid reaction follows. It is probable, however, that these experiments in vitro do not imitate the actual conditions of digestion closely enough to allow us to draw positive conclusions; one fact in particular speaks against a digestion of the catgut in the intestine, that is, the frequent negative reactions.

Einhorn's [10] experiment in which he inclosed a desmoid capsule in mutton fat and subsequently found the capsule digested in the stool cannot be considered as conclusive proof that the digestion of the catgut occurred in the intestine. In determining the melting point of mutton fat which is between 45 and 46° C., I found that at 40° the fat was much softened, so much so that it might readily become separated from the capsule in the stomach by the movements of the contents. Then the action of gastric lipase, discovered by Volhard [11] and repeatedly confirmed, must not be overlooked as a means of digesting mutton fat in the stomach.

In the four cases of achylia gastrica cited by Einhorn the test breakfast on removal contained no free hydrochloric acid and no rennin, yet a positive desmoid reaction was obtained. This result seems only to prove the inadequacy of the test-breakfast in making a diagnosis of

TABLE.

	Fasting.			Ewald Test Breakfast.			Desmoid Reaction.	Diagnosis, Remarks.
1. J. H. (M. G. H.)	20 cc.		Bile. Free HCl.	80 cc.	42 75 0	Free HCl. Total acidity. Lactic.	4½ hours.	Hyperacidity.
2. S. M. 68813 (M. G. H.)	*a.* 100 cc.		Free HCl. Bile.				4½ hours.	Hyperacidity. Hypersecretion.
	b. 50 cc.		Free HCl. Bile.	30 cc.	+ 88	Free HCl. Total acidity.	4½ hours.	
	c. 40 cc.		Free HCl.	90 cc.	40	Free HCl.	4½ hours.	
3. H. McC. (M. G. H.)	*a.* Few cc.		Free HCl.		19 38	Free HCl. Total acidity.	2 hours.	Hyperacidity. Under treatment some time.
	b. 10 cc.		Free HCl.		15	Free HCl.	4 hours.	
4. L. W. 68676 (M. G. H.)	*a.* 680 cc.		Bile. Free HCl.		25 34	Free HCl. Total.	5 hours.	Ulcer pylorus; stasis; pus, sarcinæ, yeast in contents; occult blood.
	b. 200 cc.	35	Free HCl.				6 hours.	
5. R. (M. G. H.)	50 cc.		Free HCl.	300 cc.		Free HCl.	10 hours, probably much less.	Ulcer pylorus. Gastro-enterostomy. Capsule taken 7 P.M. Urine blue at 5 A.M.
6. M. D. 69204 (M. G. H.)	120 cc.		Free HCl.	190 cc.	53 70	Free HCl. Total acidity.	5½ hours. 6 hours.	Hyperacidity.
NERVOUS DYSPEPSIA.								
7. R. M. (M. G. H.)	30 cc.		Free HCl.		20	Free HCl.	9 hours, probably less.	Nervous dyspepsia (capsule taken 7 P.M.).
8. H. E. (M. G. H.)				120 cc.	38 54 0	Free HCl. Total acidity. Lactic.	6 hours.	Nervous dyspepsia.
9. P. C. (M. G. H.)	Few cc.		Free HCl.	Only obtained by lavage.				Nervous dyspepsia.
					+	Free HCl.	5 hours.	
10. B (Student.) (M. G. H.)				200 cc.	12 32 +	Free HCl. Total acidity. Rennin.	*a.* No reaction. *b.* No reaction.	Hypermotility? Test for chromogen negative.
SUBACIDITY — ANACIDITY.								
11. Mrs. M. K. 6761 (S. H.)	15 cc.	10 15	Free HCl. Total acidity.	5 cc.	5 10	Free HCl. Total acidity.	8 hours.	Subacidity.
12. W. S. 70149 (M. G. H.)	*a.*	0	Free HCl. Bile.		0 16 0	Free HCl. Total acidity. Lactic.	7 hours.	Subacidity.
	b. 70 cc.	0	Free HCl. Bile.	200 cc.	0 14 0	Free HCl. Total acidity. Lactic acid.	7 hours.	
13. J. S. M. (M. G. H.)				60 cc.	0 6 0	Free HCl. Total acidity. Lactic.	*a.* No reaction. *b.* No. reaction.	Subacidity. Carcinoma.
14. J. Y. (M. G. H.)	20 cc.	0	Free HCl.	50 cc.	0 9	Free HCl. Total acidity.	No reaction.	Subacidity.
15. K. T. 70121 (M. G. H.)					0 8 0	Free HCl. Total acidity. Lactic acid.	*a.* No reaction. *b.* No reaction.	Subacidity. Carcinoma.

	Fasting.			Ewald Test Breakfast.			Desmoid Reaction.	Diagnosis, Remarks.
16. F. L. 6831 (S. H.)	30 cc.	0	Free HCl.	20 cc.	0 8 0	Free HCl. Total acidity. Lactic acid.	5½ hours.	Subacidity. Obstructive Jaundice. Syphilis of the liver.
17. J. McG. 25834 (M. G. H.)	10 cc.	0	Free HCl.		+ ? 0	Free HCl. Total acidity. Lactic acid.	18 hours. 18 hours.	Subacidity. Chronic gastritis. Previous tests showed no free HCl. Has been under treatment.
18. G. P. 42462 (M. G. H.)	Few cc.			20 cc.	0 20 0	Free HCl. Total acidity. Lactic acid.	*a.* No reaction. *b.* No reaction. *c.* No reaction. *d.* No reaction.	Subacidity. Chronic gastritis.
19. D. McQ. (S. H.)	50 cc.	0 14	Free HCl. Total acidity. Bile.	40 cc.	0 14 0 0	Free HCl. Total acidity. Pepsin. Rennin.	No reaction (after 4 mos.). Positive 8 hrs.	Pernicious anemia. Achylia gastrica. Marked improvement. Red cells increased from 900,000 to 2,900,000. Gastric symptoms have disappeared.
20. S. P. 70018 (M. G. H.)	20 cc.		Bile.	Few cc.	0 ? ?	Free HCl. Total acidity. Lactic acid.	No reaction.	Carcinoma ventriculi.
21. Mrs. Mary S. 6757 (S. H.)		0		30 cc.	0 15 +	Free HCl. Total acidity. Lactic.	No reaction. No reaction.	Carcinoma ventriculi.
22. M. D. (M. G. H.)	500 cc.	0	Free HCl.	410 cc.	0 28 0	Free HCl. Total acidity. Lactic.	No reaction. 15½ hours.	Carcinoma pylorus with stasis.
23. M. S. (M. G. H.)	200 cc.	0	Free HCl.	185 cc.	0 14 0	Free HCl. Total acidity. Lactic acid.	*a.* 16 hours. *b.* 10 hours. *c.* 4 hours.	Carcinoma of lesser curvature; verified at operation.
	20 cc.	0	Free HCl.	100 cc.	0 40 0	Free HCl. Total acidity. Lactic acid.		
24. T. G. (M. G. H.)	Few cc.			10 cc.	+ — 0	Free HCl. Total acidity. Lactic acid.	4½ hours.	Carcinoma pylorus. Gastro-enterostomy.
	10 cc.	+	Free HCl.	60 cc.	41 60 0	Free HCl. Total acidity. Lactic.	4½ hours.	
25. J. G. (M. G. H.)	66 cc.	0	Bile. Free HCl.		0 10 +	Free HCl. Total acidity. Lactic acid.	4½ hours.	Carcinoma pylorus. Gastro-enterostomy.
	20 cc.	0	Free HCl. Bile.	100 cc.	0 30	Free HCl. Total acidity.	4 hours.	

achylia and not that the desmoid reaction is unreliable. The test-breakfast, as already stated, does not stimulate the gastric mucosa to its utmost, and although it may not contain free hydrochloric acid or enzymes it does not follow that they are absent in the stomach after a full meal.

The results obtained in these 25 cases have been very satisfactory, and if the points brought out by Sahli, already referred to, be borne in mind the results are very instructive. In the table, the cases of hyperacidity as shown by the test breakfast, the reaction time is a little shorter than in the normal cases. Kaliski also observed this in his series and concluded from it that the rapidity with which the reaction appeared would serve to differentiate cases of hyperacidity. A similar shortening of the reaction time is noted in the series of Kühn and Alexander and Schlesinger. The difference in time, however, does not seem to be sharply enough defined to be of much significance as a diagnostic factor, but a very rapid reaction might be considered suggestive of hyperacidity, a very slow reaction, of subacidity.

Case 10 in the table is unique for, notwithstanding the presence of hydrochloric acid and rennin in the test breakfast, a negative desmoid reaction twice resulted, and the test for the chromogen of methylene blue was negative in each instance. A diagnosis of hypermotility as in a similar case of Eichler's cannot be made from the results of the test breakfast, for at the end of one hour 200 cc. were removed with the stomach tube, approximately the same amount as was taken in. The young man, a student in the clinic, was in good general health, and stated that only for a few days previous he had noticed some distress in the stomach after eating. Possibly this is a case in which the methylene blue was not excreted through the kidneys.

In the cases of subacidity, numbers 12, 22, 23 and 25 illustrate the point brought out by Sahli and already referred to, namely, positive desmoid reactions when no free hydrochloric acid is found in the test breakfast.

In cases 12 and 25 the stomach contents were always bile-stained, particularly the fasting con-

tents, indicating some regurgitation from the intestine, possibly of sufficient grade to neutralize the small amount of free hydrochloric acid secreted after a test breakfast but not sufficient to neutralize a larger amount of free hydrochloric acid secreted after a full meal. In vitro it was found that bile added to a pepsin-hydrochloric acid solution in equal parts would prevent the digestion of the desmoid capsule.

Cases 22 and 23 both presented marked stasis on admission, as shown by the amount of the fasting contents. In both cases a marked improvement in the symptoms followed frequent lavage with improvement in the digestive function as shown by the desmoid reaction.

In case 19 the patient made a marked improvement between the two tests, a period of four months intervening. The blood count increased from 900,000 to 2,900,000 and the stomach symptoms entirely disappeared.

These results, with the exception of case 10, conform in every particular to the results mentioned by Sahli; there is no case in the series in which there is any discrepancy between the desmoid reaction and the analysis of the test breakfast that does not place the burden of proof with the latter. The digestion of catgut in the secretions normally present in the intestine is proven in vitro, and assuming that it occurs intra vitam the time necessary excludes it as a factor in causing positive reactions.

The chief value of the desmoid reaction, as Sahli says, is in determining the digestive sufficiency of the gastric juice, its ability to digest the meal with which the capsule is given. As von Aldor [12] states, it is a test for both free hydrochloric acid and pepsin, and a positive reaction means that these two constituents are present in sufficient amount to digest a full meal.

The test, on the other hand, is not suited to the differentiation of the various functional disorders and it gives us no clew as to stasis or loss of motility. It does not, therefore, take the place of the stomach tube and test breakfast but acts as a control in those cases where the analysis of the test breakfast shows an absence of free hydrochloric acid or enzymes and so separates the mild from the severe cases of gastric insufficiency, fulfilling the function Sahli originally claimed for the test.

LITERATURE.

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[4] Kaliski: Deut. med. Wochenschr., No. 5, 1906.
[5] Alexander and Schlesinger: *Ibid.*, No. 22, 1906.
[6] Saito: Berl. klin. Wochenschr., No. 40, 1906.
[7] Eichler: *Ibid.*, No. 48, 1905.
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[9] Ulich: Deut. med. Wochenschr., No. 26, 1906.
[10] Einhorn: *Ibid.*, No. 20, 1906.
[11] Volhard: Münch. med. Wochenschr., pp., 141, 194, 1900.
[12] Von Aldor: Berl. klin. Wochenschr., No. 46, 1906.
[13] Grossner: Deut. med. Wochenschr., No. 22, 1906.
[14] Sahli: *Ibid.*, No. 30, 1906.

PLAGUE IN INDIA. — According to dispatches from Simla there were 75,000 deaths from the plague in India during the week ended April 13. Seventy thousand of these occurred in Bengal, the United Provinces, and the Punjab. Since the disease began in the Punjab in October, 1897, nearly 1,500,000 deaths have occurred. — *Medical Record.*

NOTE ON THE RONTGEN DIAGNOSIS OF URINARY CALCULUS: THE PREPARATION OF THE PATIENT.

BY PERCY BROWN, M.D., BOSTON,

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ADDITIONS of value to the literature of Röntgen diagnosis have been made during recent years with especial regard to renal, ureteral and vesical calculi, and he who has availed himself of the various suggestions contained in them has been gratified at the results of his improved technic. In the discussion of a paper by Baetjer, of Baltimore, at a recent meeting of the American Röntgen Society, the writer endeavored to emphasize the value, as well as the actual need, of what may be termed the "ante-operative" preparation of the patient in cases where the Röntgen examination for urinary calculus is to be undertaken. He wishes, in these columns, in as few words as possible, to elaborate upon the sentiments then expressed, for it seems to him, in the light of a growing need of Röntgen examinations in certain genito-urinary conditions, that one or two suggestions of like nature might not be quite out of place.

In times past, an excessive amount of adipose or muscular tissue, to be penetrated, has been a great handicap to proper results in examinations by x-rays of deeply-seated structures. Since the introduction, however, of certain valuable accessory appliances by Albers-Schönberg and others, these difficulties have become surmountable, and now the real hindrance to dependable results is the lack of proper preparation of the patient as regards his stomach and intestines. There are certain technical reasons why examinations of the urinary tract, in the hands of most operators, should be made under local compression of the area to be examined, in heavy individuals, at least. Aside from this, it is easy to see that if, under the influence of this compression, the intestinal contents of the patient can be temporarily forced away from the renal, ureteral or vesical regions, as the case may be, a much clearer skiagraphic image of these areas may be obtained. It is also easy to see that if, by virtue of an empty stomach or empty bowels, the process of compression can be rendered more simple for the operator, and at the same time, more agreeable to the patient, such "ante-operative" preparation of stomach and bowels is greatly to be desired in all cases.

It is useless, then, to attempt to make such x-ray examinations on the spur of the moment. Arrangements should be made at least twenty-four hours ahead, and during this period, the patient should be prepared almost as if for surgical anesthesia. Of first importance are the bowels, which should be most thoroughly evacuated. Hulst, of Grand Rapids, recommends high oil enemata. It is usual for the writer to suggest, unless the patient be habitually constipated, the use of castor oil in capsules, by the mouth, or, in the case of a young and active person, the carthar-



Röntgen diagnosis of urinary calculus. (Brown.) Röntgenograph of a right renal calculus, showing the photographic contrast which may be obtained by a proper preparation of the stomach and bowels of the patient. Patient, male of 183 pounds weight.

tic to which he is accustomed. In either case, the additional use of a suds-and-glycerine enema is desirable shortly before the sitting.

The examination should take place at a time as remote from a meal as is practicable, and the preceding meal should be partaken of sparingly with regard to liquids as well as solids. This preparation of the stomach is of especial importance when the left kidney is in question. By no means secondary in value to the especial preparation is the question of deliberation as to the diagnostic procedure. The patient should be prepared to devote from one to three hours to the sitting, so that as many exposures as are necessary may be made while the gastro-enteric tract is in the most favorable state. If there is, in the region to be examined, any co-existing or secondary pathological condition, resulting in pain or tenderness, anesthesia should unhesitatingly be produced. If ether be used, fire precautions should not be neglected. If respiratory undulations are to be avoided, chloroform is preferable. The bladder should be emptied just before the sitting, even if catheterization be required. Where a vesical calculus is in question, this is, of course, absolutely necessary, but it is none the less desirable in ureteral and lower renal cases, on account of the mechanical influences brought to bear on the abdominal wall, as a part of the modern technic.

Of the especial operative measures in these examinations, much has been written by painstaking Röntgenologists, and there is no need for repetition; suffice it to say that in procedures presenting such difficulties, the employment of especially constructed accessory apparatus, as above mentioned, makes for the best results in the hands of the majority of workers. Exposures should be short, on account of the possible slight discomfort to the patient caused by the application of this apparatus; such short exposures are rendered possible by the use of the modern modification of the Ruhmkorff coil and the vacuum tube.

In a consideration of the importance of proper physical preparation on the part of the patient, his equally important state of mind should not be forgotten. By assuring him of the painless and uninjurious character of the proceeding, the elements of apprehension and fear should be eliminated. In many instances, the cases which are the most difficult of management are those in which the patient, nervously over-excited by a procedure the nature of which he knows nothing, and the reason for which he knows but little more, is prone rigidly to contract his abdominal muscles on the least provocation. Rigidity through pain is, unfortunately, at times inevitable; rigidity through apprehension has no cause for being.

It must be appreciated that there are to be found certain cases of renal emergencies associated, possibly, with anuria, where such preparation cannot be undertaken. The Röntgenologist must be prepared to come in contact with such instances, and to compensate for the difficulties they present by especial painstaking care in ways available. In them he often finds, however, a favorable condition of the bowels, produced by an exhibition of purgatives in the efforts to eliminate toxins, or as preparation for an anesthetic.

Statements have been made as to the various shadow-producing qualities of urinary calculi according to chemical composition and atomic weight. Realizing, however, the likelihood of a mixed chemical composition, it is the writer's belief that every suspected stone should be repeatedly and diligently searched for, and that, with proper preparation, apparatus and manipulative care, there are few which may not be found, regardless of the findings in the urinary sediment.

In these few words, therefore, an attempt has been made to emphasize the fact that what may amount to a simple set of instructions for the practitioner to give, and fully as simple for the patient to carry out, invariably becomes, when a trustworthy Röntgen diagnosis is to be made, a matter of the utmost importance.

THE SUMMER CLIMATE OF ORACLE, PIMA COUNTY, ARIZONA.

BY ISAAC W. BREWER, M.D., FORT HUACHUCA, ARIZ.

To the patient who has wintered in southern Arizona, there comes a time when the all absorbing question is, Where shall I spend the summer? For persons who can afford an expensive railway trip, Flagstaff, Ariz., or the stations in northern New Mexico or Colorado seem to offer the most attractions, but for those whose means are limited it is necessary to find a summer station somewhat nearer.

It may be taken as a rule that any point in Arizona which has an elevation of 4,500 feet or more will be comfortable during the summer, provided it is not shut off from the mountain breeze. In such locations the afternoon temperatures will occasionally exceed 100 degrees, but owing to the dryness of the air such temperatures are not felt as much as similar temperatures in a moister region. The direct rays of the sun are very penetrating, but their intensity is overcome by a very slight shade. The nights are always cool and comfortable.

Oracle is such a station. It has an elevation of 4,510 feet and is situated among the foothills of the Santa Catalina Mountains. The surrounding country is arid and very much like that seen around Tucson, but being a little more moist there is more vegetation. Here there are large oak trees that afford a welcome shade during the hotter hours of the day. The soil is porous and dries very rapidly after a shower.

At Oracle are located the Arcadia and Neal ranches, both making an especial business of providing accommodations for persons with tuberculosis. At each ranch there are cottages and tents, and the weekly charges vary from $10 up. The management of these ranches endeavors to supply an abundance of good food, especially fresh eggs and milk. Most of the food supply comes from Tucson which is situated about forty

miles south, and with which there is communication by stage. The stage makes the trip in six hours but the distance can be covered by automobile in three hours.

The following tables give the available climatological data:

TABLE I. TEMPERATURE.

	Mean.	Highest Mean.	Lowest Mean.	Maximum.	Minimum.	Mean Maximum.	Mean Minimum.
April,	60	63	53	90	39	71	47
May,	68	72	64	102	32	81	56
June,	78	82	74	105	40	90	67
July,	80	85	78	102	57	92	71
August,	78	80	75	103	55	88	68
September,	74	77	71	97	48	83	64

	Mean Relative Humidity, Per cent.	Average Precipitation.	No. Rainy Days.	No. Clear Days.	No. Partly Cloudy Days	No. Cloudy Days.
April,	19	0.4	3	22	5	4
May,	19	0.3	2	27	3	1
June,	24	0.4	1	26	3	1
July,	33	2.3	7	18	9	4
August,	50	3.1	8	15	12	4
September,	38	1.6	6	18	9	3

TABLE II. SHOWING THE PERCENTAGE OF DAYS FOR EACH MONTH FOR THE PERIOD FROM 1901 TO 1905 THAT THE EXTREMES OF TEMPERATURE WERE BETWEEN CERTAIN CRITICAL POINTS.

	April.	May.	June.	July.	August.	September.
Maximum:						
Above 100	0	0	1	1	0	0
90–100	0	2	59	67	37	15
75–89	51	83	39	32	61	75
40–74	49	15	11	0	2	10
Minimum:						
Above 40	84	98	100	100	100	100
32–39	16	2	0	0	0	0

The mean temperature for the six months from April to September, which is the period covered in this paper, varies from 60° in April to 80° in July, falling to 74° in September. The greatest heat is in June and July when the mean maximum reaches to ninety and above, but there is a decided fall as soon as the rains become well established, and August is a comfortable month. The highest temperature recorded is 105°. During the five years from 1901 to 1905 the temperature was above 100° on but three dates. In July the maximum temperature is liable to be between 90° and 100° on 67% of the days. In August the number of days with temperatures above 90° falls to 37%.

The mean minimum temperature reaches 71° in July and is above 60° during the other months excepting April and May. Temperatures below freezing point have been recorded in April and May.

The relative humidity rarely reaches 50% and during the summer months is generally below 40%.

The precipitation for the period amounts to 8.1 inches which is about three inches more than at Tucson. Nearly one third of the precipitation falls during the summer months. These rains are mostly in the shape of short sharp thunder storms occurring during the afternoon and are great factors in cooling the air. During the period under consideration there are, on an average, twenty-seven rainy days.

During the same time 68% of the days are clear, 22% partly cloudy, and 10% cloudy.

The climate of Oracle is similar to that of Fort Huachuca, where, during the past four summers, I have not found the weather unpleasantly hot.

While not so cool as Flagstaff, Oracle seems to be a desirable summer station for persons who have wintered in the vicinity of Tucson and are unable to make the journey to some distant resort.

Tucson people who have spent the summer there speak very highly of it and say it is much cooler than Tucson. The statistics published by the Weather Bureau seem to indicate that the difference between the temperatures at the two towns varies from 8° to 12°.

Clinical Department.

THREE CASES OF EXTENSIVE NERVE INJURY FROM REMOVAL OF CERVICAL GLANDS.

BY J. W. COURTNEY, M.D., BOSTON,
From the Clinic for Diseases of the Nervous System, The Boston City Hospital.

THE operative handling of diseased anterior cervical glands is, as a rule, not a subject of deep surgical interest, and I make as my excuse for reporting the three cases of this sort, which came under my observation between April, 1904, and November, 1906, the exceedingly serious and startling nervous phenomena that followed in the wake of operation.

In all three of my cases the surgeon's incision was made along either the inner or the outer border of the sterno-mastoid muscle, but inasmuch as this primary incision is not, in my judgment, responsible for the nervous lesions, I propose, at the risk of going over well-known ground, to speak very briefly of certain aspects of the anatomy of the region in question.

With regard to the sterno-mastoid, I wish to recall that it is in relation below with the lower part of the common carotid artery, internal jugular vein, the pneumogastric nerve, the descendens and communicans noni, the deep lymphatic glands, the spinal accessory nerve — which pierces its upper third — the cervical plexus, the occipital artery and part of the thyroid gland.

The cervical plexus is formed by the anterior

divisions of the four upper cervical nerves, is situated opposite the four upper vertebræ, rests upon the levator anguli scapulæ and scalenus medius muscles and is, as implied above, covered in by the sterno-mastoid.

The brachial plexus is formed by the union of the anterior branches of the four lower cervical and the greater part of the first dorsal nerves, and extends from the lower part of the side of the neck to the axilla. In the neck it lies at first between the anterior and middle scaleni muscles, and then above and to the outer side of the subclavian artery. At this latter point it is acessible for operation.

Out of these complex relations of the various structures of the neck, two only are of importance for the purpose of this paper: that between the sterno-mastoid and the spinal accessory nerve, and that between it and the cervical and brachial plexuses. With these in mind it is only too comprehensible how the finger of the surgeon, the primary incision being made, may sweep down in behind the sterno-mastoid in search of glandular débris, and inadvertently tear away or otherwise injure the soft, yielding nerves lying within its easy reach.

How disastrous and irreparable such an inadvertence may prove to be is clearly set forth in the three clinical histories which follow:

Case I. J. M., male, aged fifty-two, married; occupation, bar-tender. Date of first visit, Nov. 30, 1906.

Family history. — Negative as to nervous and mental diseases.

Previous history. — Patient has been married twenty-one years and has begot five children, only one of whom is living. The others died in infancy. He admits gonorrhea at thirty, and says he had a "little crop of warts" on his penis twenty years ago. This crop was burned off by a doctor, and he claims that he was well in a few days. He denies all secondaries. He has been a periodic drinker, absorbing during such periods as much as a half pint of whiskey a day. Two years ago he had a gland removed from the right side of the neck without trouble, and was operated for strangulated hernia at the same time. He had no trouble after this for a year or more.

Present complaint. — This dates from the recurrence of the glands in the right side of the neck and the beginning of pain associated therewith, running down through the right shoulder.

The patient allowed this condition to go on until Sept. 1, 1906, when he went to a hospital and underwent an operation.

Prior to the operation he had no paralysis or even paresis of the neck, shoulder or arm, Directly he recovered from the immediate effects of the operation he noticed that the right shoulder drooped. He went to work three weeks after the operation, suffering from pain in the right shoulder and lower neck, often also in the upper portion of the back of the neck. With all this he found that his lifting power was affected and that he was unable to raise the right arm as formerly. At the present time, Nov. 30, 1906, he thinks the pain has moved further down the arm and finds that the weakness has so far increased that he can't dress himself at all.

Physical examination. — Dec. 3, 1906, patient is a slightly stooped individual, with rather mask-like features and a certain suggestion of *protrusio bulbi* in both eyes. The pupils are equal and regular, and respond normally to tests of light and accommodation. Field of vision normal. The facial and ocular muscles are normal, but fixation of the attention brings out a fine tremor of the head. There is some tremor of the tongue and lips, although the tongue is protruded straight. The whole right shoulder droops markedly and there is obvious atrophy of muscles above and below the clavicle. Along the inner border of the right sterno-mastoid is a linear operative scar, about three inches long and fairly recent looking. With the head held stiffly, patient cannot raise the point of the right shoulder. With the shoulders fixed, the head cannot be drawn directly backward. With the hands clasped behind the head — I assisting — patient can shrug the left shoulder but not the right. With the shoulders fixed the head cannot be inclined to the right and rotated backwards. With the arms crossed behind the back — again with assistance — the right shoulder blade cannot be approximated to the spine. With shoulders fixed, lateral flexion of the spine is much lessened on right; o. k. on left. The whole right sterno-mastoid seems to have vanished, and the approximation of chin to left shoulder, with occiput to right shoulder, is well-nigh impossible. The right arm cannot be raised from the body beyond an angle of 40°, but the deltoid does not seem particularly atrophied. The right arm can be rotated outward and inward with fair strength. The right pectoral is markedly wasted. Flexion, pronation and supination of the forearm are fairly good but extension is weak. The left grip is 100, the right only 75 (patient righthanded). The fingers of both hands are swollen and the skin is exfoliating. All the nails except those of the thumb are blackened and atrophied. The electrical changes in the affected muscles were found to be of a quantitative character only and varied in degree in direct proportion to the degree of atrophy.

From the widespread nature of the paralysis and atrophy as above described, it is obvious that not only the accessorius and the major portion of the cervical plexus were seriously injured at the time of the operation, but that a secondary neuritis of the brachial plexus has started up and added materially to the disability.

Case II. Female, single, aged nineteen; occupation, stenographer. Date of first visit, April 27, 1904.

Family history. — Said to be negative as to nervous and mental diseases.

Previous history. — Patient has had the usual children's diseases and had suffered from tonsilitis on several occasions. Five years previously glands had been removed from the left side of the neck without any trouble, and a few months later a similar operation had been performed without untoward results. From this time she had remained perfectly well, except for a recurrence of the glands in the neck, up to eight months ago, when a third operation was performed. Prior to this operation she had absolutely no trouble with the muscles of the neck, shoulder or arm.

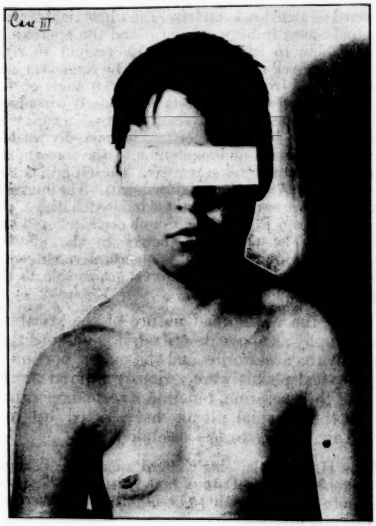
Present complaint. — Eight months ago patient underwent an operation at a hospital, for removal of diseased cervical glands on the left side. She was under ether a long time and found on coming out of it that the left shoulder was very weak and that she couldn't raise the left arm at all. Associated with this was considerable pain in the neck, which prevented her from turning her head. She tried to work two weeks after the operation, but found that the left hand was useless. She gave up her work for three weeks, then

went back and worked a day. She grew very nervous and despondent, her appetite became capricious and she was obsessed and phobic to a marked degree. At the end of six months she again returned to work but had to give up after a few days' trial. At this she gave up completely and remained away from work for nine or ten months.

On her first visit to the Nervous Department, examination showed considerable atrophy in the left shoulder-girdle group, but only moderate weakness in raising the shoulder. There was weakness also in the inward and outward rotation of the arm. The scapula was everted and rotated forward.

Electrical examination showed a quantitative diminution to faradism in the left trapezius; the other muscles appeared to react normally.

No further examination was made at this time and the patient disappeared from the clinic. At my request she came to my office on Feb. 17 of this year, and examination made by me revealed the following:



The left side of the neck has lost its fullness, and there are marked supra- and infra-clavicular depressions. The neck itself shows three large and disfiguring scars from the old operations. The cervical border of the left trapezius is markedly thinned, but the shoulder-girdle group is not otherwise strikingly affected. The supra- and infra-spinatus muscles are slightly atrophied, the rhomboids much more so, approximation of the left scapula to the spine being seriously hampered.

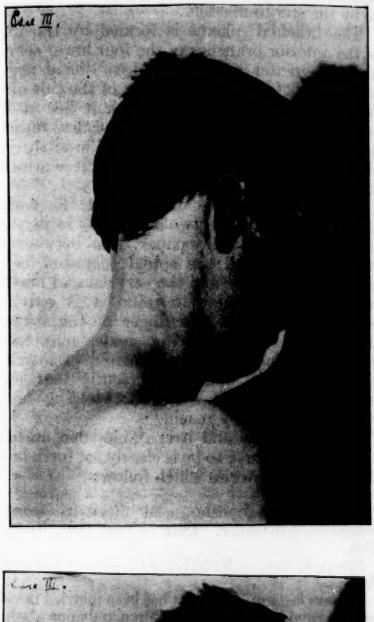
Electrically the affected muscles show only quantitative loss to faradism. The intense nervousness which the patient exhibited in 1904 has practically disappeared and she is able to perform her work as a stenographer fairly satisfactorily, although she says the left arm and shoulder tire easily.

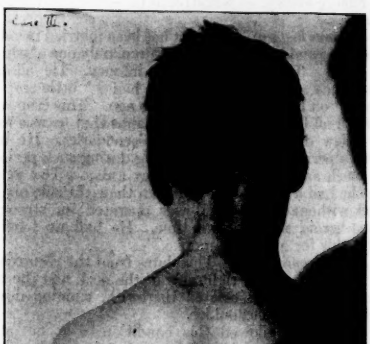
CASE III. Schoolboy, aged thirteen.

Date of first visit, Oct. 24, 1906.

Family history. — Negative as to nervous and mental diseases.

Previous history. — The boy's father states that prior to five years ago there was no trouble with neck, shoulder or arm.





Present complaint. — Five years ago the boy was operated upon for diseased glands of the right side of the neck. At some time subsequent the mother thought the boy was growing round-shouldered and took him to the Children's Hospital, where the real

nature of the trouble was pointed out. The patient says that the only trouble he himself noticed was that he couldn't throw a ball as well as formerly.

At the time of his first visit to the City Hospital clinic the conditions were about as at present, and as the accompanying photographs show fairly well. There was a marked shoulder-drop on the right, marked supra- and infra-clavicular depressions, thinning of the cervical border of the trapezius and considerable wasting of the pectorals. Posteriorly there was some atrophy of the supra and infra-spinatus, with eversion and forward rotation of the right scapula. The right arm could be raised fairly well to a right angle with the trunk, but beyond that only with difficulty. All other motions of the arm and hand were also weak. Motions of the head and neck were possible but distinctly limited on the right. The right scapula could not be approximated to the spine. The affected muscles showed varying degrees of quantitative loss to faradism.

The situation to-day, Feb. 23, 1907, shows but little change for the better, although the patient has had the benefit of four months' treatment by massage and electricity.

The photographs used in illustration of the conditions in this last case may be regarded as illustrating all such cases, the only variation being one of degree of severity.

In the matter of prognosis it need only be said that the nature of the original lesions implies permanent damage. In Case I, the most recent of the three, a certain amount of recovery will probably take place. Case II may be characterized as one of "healing with defect," while a lapse of five years in Case III practically places the damage upon a permanent basis.

The surgical lesson taught by these cases is too obvious to require comment.

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D.,
AND
H. A. BARNES, M.D.

NASAL POLYPI.

The etiology of nasal polypi has long been the subject of much discussion. That they are the result of underlying inflammation or disease is now undoubted. An interesting contribution to this subject appears in a recent monograph by Yonge.[1]

The author's position is strengthened by having produced polypi artificially in cats which he subjected to the conditions under which he believes that polypi are formed. Disease of the underlying bone, which by several authors has been looked upon as the primary cause, he considers secondary, if it exists, to changes in the mucous membrane. Briefly stated, the writer believes that on account of the structure of the mucous membrane from which polypi grow, a partial closing of the ducts of the glands accompanied by hypersecretion will tend to produce polypi. The sequence of events is as follows: Chronic inflammation of the mucous membrane, dilatation of the glands going on to cystic distention, caused either by marked inflammatory infiltration of their ducts produced by septic discharges, or by excessive filling of the gland combined with a partial obstruction to the exit of the gland contents. Then follows edematous infiltration of the surrounding tissues, resulting from the passage of serum through the capillary walls, due to increased pressure in certain of the capillaries, owing to obstruction, and to increased permeability in the capillary walls, the result of inflammation, and to the laxity of the surrounding tissues. This leads to the formation of folds or projections on the infiltrated mucous membrane, the increase of edema in certain of the folds combined later with a hyperplasia of the fibrous elements, the formation of flat edematous structures containing the essential constituents of the nasal mucous membrane, or of edematous structures containing the same constituents but a greater amount of fluid, and perhaps of hyperplastic tissue, and each possessing a base which gradually becomes relatively constricted and stretched until it constitutes a pedicle.

ETIOLOGY OF DEVIATION OF THE SEPTUM.

That the nasal septum of civilized man should deviate from the median plane in a large proportion of the race has been a matter of interest for years. With the introduction of constantly improving methods for correcting the deformity during the past fifteen years, many theories to account for its existence have been brought forward. Many of these were for obvious reasons unsatisfactory. Spurs and ridges were often looked upon as outgrowths of cartilage or bone, only accidentally connected with deviation of the septum as a whole. More recently deviations, when not obviously due to trauma, have been commonly considered to be the results of asymmetrical development, and spurs and ridges, dislocated or misplaced portions of the septal cartilage or bone. While this asymmetrical growth is probably influenced by many factors, as is asymmetrical growth in other parts, no one factor, with the possible exception of trauma, satisfactorily accounts for the more common types of deviation, especially of the tendency of the lower border of the cartilage to dislocation along the upper border of the vomer. On this account the relation of deviation and spurs to the eruption of the permanent incisor teeth, recently studied by Mosher,[2] is especially interesting. Embryologically, the septum and the premaxillary bones are formed by the fusion of the mesial nasal processes. At birth the lower part of the septum is a shallow trough composed of three overlapping segments,— the vomer behind, the nasal spines in front, and between and connecting the two the premaxillary wings or subvomer bones,— into which trough the quadrilateral cartilage and the perpendicular plate of the ethmoid dip from above. Bearing this in mind, it may easily be appreciated that the weakest points in the septum are the suture line between the perpendicu-

lar plate and the vomer, and the point at which the vomer trough is overlapped by the trough formed by the premaxillary wings. Any force that disturbs the normal coaptation of these constituent parts may produce deviation to one side or the other. The subvomer bones are prominent offenders in this particular, producing pressure by hypertrophy, which hypertrophy is caused by irregular or delayed eruption of the incisor teeth, the sockets of which are formed by the premaxillary bones. When the two wings are symmetrically but only slightly enlarged they tip evenly outward and produce basal spurs on either side of the septum anteriorly. When, however, the enlargement is symmetrical and at the same time excessive, the tip of the septum is first pushed upward and then to one side, with a resultant horizontal folding of the lower part of the cartilage upon itself. When the delay is unilateral, the hypertrophy is on the delayed side only, the quadrilateral cartilage is tipped out of its bed along the vomer-ethmoid articulation making a spur at this point and causing a deviation to the side opposite the hypertrophy.

Up to the eighth year, at which time the ossification of the septum is complete, trauma plays a minor part in producing deviations of the septum, as the force of blows is reduced by the elasticity of the cartilage. After this age trauma is an important cause of deviation. Trauma by breaking one or both premaxillary wings and one or both leaves of the vomer can produce spurs and deviations identical with those produced by delayed eruption of the incisor teeth. Where trauma causes the deviation, the anterior border of the perpendicular plate of the ethmoid plays an important rôle. This is the thickest part of the septum and the buffer against which blows from the front expend themselves. If this border is obliquely vertical, as it usually is, it is rightly placed to withstand trauma. If, on the other hand, it runs horizontally backward, it transmits the force of the blow along the vomer-ethmoid articulation. The direction, therefore, of the anterior edge of the perpendicular plate of the ethmoid determines how far back on the septum the force of the blow will be felt. The typical deviation caused by trauma from the front is a double one. First, a vertical deviation and then a horizontal one into which the first merges. No rules can be given for deviations and spurs caused by excessive trauma from the front or from the side. The writer sums up his views as follows: A great many spurs and deviations are caused by delayed eruption of the incisor teeth. After the teeth, trauma is the most common cause of deviations of the septum. In many cases the teeth start the deformity; trauma supplements and increases it.

SKIAGRAPHY AS AN AID TO THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE ACCESSORY SINUSES OF THE NOSE.

Coakley [3] first called the attention of the profession in this country to the value of x-ray plates as an aid to diagnosis and treatment of accessory sinusitis. He had seen plates taken for this purpose by Killian, of Freiburg, and in March, 1905, published the results of ten cases of radical operation in which skiagraphs had been taken. Since that time several communications have come from him on the subject. His results, together with those of Mosher [4] and Chisholm [5] demonstrate conclusively the great value of such plates, especially in frontal sinus disease.

An antero-post and right and left side views should be taken in all cases. The antero-posterior plate shows the presence or absence of the sinus, the size of the sinus, the position of the complete septum separating the right and left sinuses, and the partial partitions, and the presence or absence of an orbital prolongation. As in one third of all cases the frontal sinus does not come into the brow, but is simply an anterior ethmoid cell within the upper angle of the orbit, the plate obviates the necessity of always making the initial opening at the root of the nasal bones, the only safe procedure previous to the use of the plates. Cloudiness over one sinus or in the ethmoid region denotes either pus or diseased, polypoid or edematous mucous membrane.

The side views corroborate the testimony of the antero-posterior plate in regard to the height of the sinus and the size of the orbital prolongation. In cases of diseased sinuses, in which the antero-posterior x-ray plate fails to show the outline clearly, the side views are of inestimable value, as in them the outlines of the sinus come out clearly even when the sinus is filled with pus. They also show the depth of the frontal sinus and the extent of the basal relationship between the floor of the sinus and the anterior ethmoid cells. This is of importance from the standpoint of prognosis as we may state before operation the probabilities of making a sizable opening into the nose insuring adequate drainage.

PNEUMOCOCCUS INFECTIONS OF THE ACCESSORY SINUSES.

In a preliminary communication founded upon fifty-two autopsies at Ancon, Isthmus of Panama, Darling [6] concludes that the portal of entry of the pneumococcus is, in most instances, an accessory nasal sinus, the mucous membrane of which is probably fitted for the reception of the pneumococcus by an antecedent influenza or rhinitis. Of the autopsies 37 were pneumococcus infections, including 22 lobar pneumonia, 1 acute pericarditis, 9 acute meningitis and 5 pneumococcus septicemia. Of these 92% showed in a very marked degree pneumococcus inflammation of one or more of the sinuses. It is fibrino-purulent in character, fibrin and mononuclear cells being abundant. Pneumococci are always present and in numbers depending on the duration of the process. A point of great importance is the age of the sinus infection which has been appreciably greater than that of the lung or meningeal lesion.

HYPEREMIA IN THE TREATMENT OF DISEASES OF THE UPPER AIR PASSAGES.

The methods of Bier for the treatment of different diseases by inducing hyperemia has been

studied by Polyak [7] in cases involving the upper respiratory passages. Following the technique of Keppler, passive congestion of the head is induced by an elastic bandage about the neck. The bandage should be so made that the degree of constriction can be easily altered; and especially if the effects of the hyperemia are desired in the larynx, it must be placed as far down on the neck as possible. It should never be placed over the larynx, but in the region of the thyroid gland, where it is generally tolerated by the patient without discomfort, even at his meals. Although Bier recommended that the bandage be kept on for twenty out of the twenty-four hours, the author has reduced the time to eight or twelve hours a day, broken by two or three intermissions of an hour or two each. In cases of disease of the larynx, especially tuberculosis, he begins with short periods, thirty minutes, noting the effects with the laryngoscope. The effects of this induced congestion were often striking. Headache disappeared in a few minutes, and pain in swallowing in cases of acute tonsillitis and pharyngitis were often quickly relieved. This relief of pain was also obtained in cases of laryngeal tuberculosis, so that the condition of the patient was much improved. When the bandage is removed, although the pain recurs, it is less rather than more acute as a result of the previous hyperemia.

A second method of inducing hyperemia consists in a special suction apparatus in which a cup is applied over some local point in the pharynx, and the air exhausted by means of a rubber bulb. This suction is continued for a few minutes, and may be repeated if desired. The author has obtained good results in cases of acute swelling of the tonsils, painful pharyngitis and crust formation.

The author considers that it is well worth while to try induction of hyperemia in certain diseases of the upper air passages. The experiment is simple and has never given rise to serious complications. Nevertheless, it should be carefully applied. At the beginning, at least, it should be under the observation of a physician. This is especially true in cases of laryngeal tuberculosis, where edema of the larynx is possible. It may be of use in acute catarrhal and purulent processes with crust formation, torpid ulceration, tuberculosis and lupus. Although it is not easy to describe the exact degree to which positive congestion should be carried, it may be said that it should never be distinctly uncomfortable for the patient, nor cause marked congestion nor headache. The proper degree is where a previous pain is at least relieved after a few minutes.

THE BACTERIA OF SCARLATINAL AND NORMAL THROATS.

Ruediger [8] has reported results of examinations of cultures from the tonsils of 154 cases, divided as follows: Normal 51; scarlatina 75; measles 14; tonsillitis 5; pneumonia 5; pharyngitis 4. Streptococcus pyogenes was constantly found in great numbers in all cases of scarlet fever and tonsillitis. As a rule this organism greatly predominated over other colonies when the inflammation of the throat was pronounced and rapidly decreased in numbers with the subsidence of the throat symptoms. When the throat symptoms were mild the proportion of the streptococcus colonies to other colonies was small. In normal throats the streptococcus was found in 58% of the series examined, but was always present in small numbers. The author considers that it cannot be considered a normal inhabitant of all healthy throats. The streptococci from normal throats had a slightly greater virulence for rabbits than those from scarlatinal throats, which agrees with the reported results of Hilbert [9] and Tunnicliff.[10] Pneumococci of low virulence were found in 135 of this series of 154 throats. The Commission for the Investigation of Acute Respiratory Diseases of the Health Department of the City of New York [11] found the pneumococcus in an equally large percentage of persons not afflicted with pneumonia. Klebs-Löeffler bacilli were found in 4 cases, which was to be expected, as innumerable observers have reported present in normal throats in varying percentages. Bacillus mucosus and bacillus influenzæ were each found once. Staphylococcus aureus and citreus and micrococcus tetragenus were found occasionally, but were thought to be contaminations from the tongue. Gram-negative diplococci which form small brownish colonies were found quite frequently. Some of these were identified as micrococcus catarrhalis. A large group of organisms which lies between the typical streptococcus pyogenes and pneumococcus was found in all normal throats and in nearly all diseased throats. These organisms have little virulence for rabbits and, as they are found in great abundance in practically all throats, they would appear to be normal inhabitants.

A DEFINITE CONDITION OF IRRITATION OF THE LARYNGEAL NERVES.

Among the neuroses of sensation of the larynx and its neighborhood Boenninghaus [12] believes that certain symptoms occur together frequently enough to constitute a definite pathological picture. The principal symptom is pain or discomfort, varying much in different cases, but accompanied by definite spots which are tender to pressure. This condition arises generally as a sequel to inflammatory disturbances of the pharynx, larynx and trachea. As these tender spots are found in the paths of the laryngeal nerves, it is probable that the symptoms are due to an irritation of these nerves. As this condition is a not infrequent one, and as it seems to be benefited by massage of the neck, the subject is one of practical importance. It is fully as common in men as in women, and very rare in children. It may last for days or months or even years. The pain varies very much in different cases, but one very common characteristic is that the pain is aroused by the motions of swallowing when nothing is swallowed. The essential element in the diagnosis is the presence of certain definite spots sensitive to pressure, an upper spot between the

greater cornu of the hyoid bone and the upper edge of the thyroid cartilage, that is, in the lateral part of the thyro-hyoid membrane; and a lower spot on the lateral border of the trachea. The patient will sometimes point out one of these spots as the seat of his trouble. In other cases they are discovered by careful manipulation, especial attention being given to the relative sensations of each side. Treatment by massage is generally effective, and the galvanic current is also useful.

MALIGNANT DISEASES OF THE LARYNX.

As is usual, much has been written on this important subject during the past year; and although nothing essentially new has been advanced since the last review of the subject in the JOURNAL, Feb. 5, 1904, the increased numbers of reported results in operative cases has made prognosis more definite and hopeful. All the writers accentuate the necessity of early diagnosis and the removal of the growth in its incipiency. Baginsky [13] states that although extirpation of the larynx has become a less dangerous operation than formerly, and after-treatment has been much improved, still the mortality is great, and early diagnosis holds out the only hope of permanent cure. Mackenzie [14] advances the view that injury to the growth due to excision for microscopical examination opens the pathway for metastatic invasion, and he makes a plea for diagnosis by exclusion without the aid of the microscope if possible. If, however, a piece must be removed for examination, let operation be immediate, if the growth prove malignant.

Jackson [15] urges the frequent malignant nature of chronic hoarseness. The early curable stages of cancer of the larynx are characterized by nothing but hoarseness, which may disappear and recur. Cough, odor, pain and glandular involvements are present only when the curable stage is passed. He reports 15 cases of thyrotomy and 8 cases of total laryngectomy. No immediate deaths occurred, which he modestly ascribes to good fortune; and the subsequent history of his cases show surprisingly good results. Of the 15 thyrotomies 5 were alive and well two years after operation. His conclusions are: Early diagnosis is essential; if discovered early, the comparatively slight operation of thyrotomy will cure. If discovered late, total or partial laryngectomy will probably prolong life for a variable period but recurrence is fairly certain.

In a recent paper Semon [16] reviews the whole subject, his present views not differing materially from those of his earlier papers.

THE ETIOLOGY AND PATHOLOGY OF VOCAL NODULES.

Miller [17] has contributed an interesting and original article on this subject. Microscopically he has found nodules to consist of a superficial localized edema manifesting itself on the edge of the cord, with little or no change in the epithelial layer either in the external hornified stratum or in its relation to the subepithelial connective tissue. He found no evidence of an inflammatory process. Nodules may be traumatic in origin, such as those produced during violent coughing, in which case the nodule may appear at any point on the cord. On the other hand, the nodules caused by vocal weakness display a puzzling affinity for particular portions of the cords. They are generally found protruding from the anterior and middle third on one or both sides of the glottic opening. The traumatic nodule and what may be styled the vocal node are oftentimes simultaneously present, the traumatic nodule existing by itself in some irregular portion of the cord or superimposed upon or blended with the vocal node each to be distinguished by its well defined location, though produced by totally different causes. His theory as to the causation of the typical nodes is as follows: A great majority of the subjects present a follicular tonsillitis, accompanying this there is more or less congestion of the mucous membrane of the larynx. This renders that portion over the vocal cords more liable to become edematous. It is further thought that there is a hyperactivity of certain fasciculi of the thyro-arytenoideus externus muscle, and that where these bundles cross the true cords there is produced localized edema or a singer's node. In support of this theory the author has succeeded in producing nodules experimentally in dogs. A tonsillitis was first produced by painting the fauces with cantharidal collodion and two days later rubbing on the surface a virulent culture of streptococci. Then through a slit-like opening in one side of the thyroid cartilage a small piece of the central portion of the thyro-arytenoideus muscle was removed, consisting of its whole thickness but not completely dividing the muscle, in the hope that the nodes would be produced at the joints where these fasciculi pressed on the true cord. Examination with the laryngoscope after convalescence showed a node about where the post-fasciculus crossed the cord. This was confirmed by a post-mortem examination. A very interesting fact was that, on splitting the larynx open from behind through the cricoid cartilage, the node disappeared. From this it is suggested that nodes cannot be preserved after death.

GASTROSCOPY BY MEANS OF A MODIFICATION OF THE KILLIAN ESOPHAGOSCOPE.

Chevalier Jackson [18] has devised a modification of the esophagoscope which he has used with success for direct inspection of the stomach for purposes both of diagnosis and treatment. The instrument is simply a lengthened esophagoscope with the lamp at the distal extremity of the tube as in the bronchoscope and esophagoscope previously devised by the author. For use in the adult the tube is 9 mm. in diameter and 80 cm. in length. The light is carried on a removable light carrier which passes through a small auxiliary tube made in the wall of the main tube. When the carrier is in place the small lamp is at the extreme distal end of the gastroscope where it brilliantly illuminates the field without interfering with vision or instrumentation. Dry

batteries are advised for lighting as the current from commercial lighting circuits may be "grounded" through the patient. The secretion aspirator, cotton carrier and tube forceps of increased length are used as in bronchoscopy or esophagoscopy. Deep anesthesia is absolutely necessary to prevent retching, and ether is the choice, as the author considers chloroform especially dangerous for gastroscopic work. The tube is inserted in the usual way with the patient supine and the head well over the end of the table in Rosen's position. It is first passed to the greater curvature and the anterior and posterior walls inspected. It is then partially withdrawn, inclined slightly laterally in the same plane and again pushed downward in a new series of folds. After the whole possible range has been covered in this way the tube is passed down until the extremity touches the wall of the greater curvature at the extreme left of the possible field. It is then moved slowly along the greater curvature, but not in too close contact, until the extreme right is reached. This movement is repeated as many times as is necessary to cover the field as high as the cardia, the tube being withdrawn a centimeter or two with each repetition. Abdominal palpation may then be used to bring unexplored portions of the gastric mucosa within the field. This sometimes is better accomplished by turning the patient from side to side; but during these latter manipulations the tube must be withdrawn from the esophagus, and reinserted when the stomach is in its new position. In a patient with a normal stomach and esophagus the greater curvature for an extent of about 14 cm. and a considerable area of both the anterior and posterior walls may readily be explored without the aid of external manipulation. The fundus and pyloric ends can be brought within range of the gastroscope by change of position or by palpation. In the vertical or gastroptotic stomachs, the lesser curvature, the pylorus and the pyloric third are easily seen with little or no external manipulation. The author reports diagnoses of gastritis, gastroptosis, malignant disease of the cardia and the pylorus, each in one instance; of peptic ulcer in three cases, one of which was cured by direct application.

ADRENALIN CHLORIDE, DANGERS OF ITS INDISCRIMINATE USE.

Adrenalin has been a great boon to the intranasal operator, enabling him, as it does, to operate in a comparatively dry field. That it is not always an innocent and harmless agent has been shown by the investigations of Josué,[19] Erb,[20] Rzentkowski,[21] Fisher,[22] Pierce,[23] and Stanton,[24] during the past three years Josué first called attention to the fact that intravenous injections of adrenalin in the rabbit were followed by extensive changes in the aorta and larger vessels, and this observation has been corroborated by the results of the other observers. The change consists of localized destruction of the smooth muscle fibers of the media accompanied by rapid calcification and other characteristic alterations in the elastic tissue elements. Erb states that there is no actual similarity between this condition and the arterial sclerosis in the human subject. There is no sclerosis in the sense of a thickening due to proliferation of the intima, nor an atheromatous process, but there is apparently an analogy between the condition described and the calcification of the media as found in the large arteries of the extremities in man. Josué,[25] in a more recent article, says that hypodermic injections may be given up to $\frac{1}{6}$ gr. in twenty-four hours, but if this dosage be exceeded there is danger of producing toxic effects. Applications to the unbroken nasal mucous membrane may be made without anticipation of untoward action. Adrenalin is often freely applied in mid-operation in intranasal work, and the question becomes pertinent as to whether in so vascular a tissue as the mucous membrane of the nose, enough of the solution may not be absorbed through the cut surface to give rise to the immediate toxic symptoms and later vascular changes. A case has recently been reported of profound general disturbance induced by the injection of half a dram of 1–1000 solution into the urethra for the purpose of checking bleeding after the passage of a sound.[26] The cut nasal mucous membrane would seem to offer as fair a chance of absorption as the urethra.

Less serious than the above described conditions, but still of importance, are the local symptoms which may follow the long-continued use of nasal sprays of adrenalin for the relief of hay fever. B. H. Potts,[27] has made a timely protest against the careless use of this drug, and reports several cases of persistent turgescence of the nasal mucous membrane, due to long continued home use of adrenalin sprays by the patient.

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DEATH OF RAILWAY SERVANTS FROM ACCIDENTS.— Some interesting figures have recently been given out showing the number of railway servants in England killed for each year from 1896 to 1906, both inclusive, in the movements of railway vehicles. The total number for eleven years was 5,241, and the yearly average number of deaths was somewhat over 476. The worst year was 1900 with 583 deaths, and the best year was 1905 with 399.— *British Medical Journal.*

Reports of Societies.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

STATED MEETING, WEDNESDAY, APRIL 10, 1907, AT 8.30 P.M.

SYMPOSIUM ON INSANITY AND CRIME.

THE PRESIDENT, DR. JAMES B. WALKER, in the chair.

PARANOIA, ITS VARIETIES AND MEDICO-LEGAL IMPORTANCE.

DR. CHARLES W. BURR gave his own conclusions relative to what kind of a man really acquires paranoia, described the symptoms and pointed out how such a man is unlike other men with other mental diseases. The great cause of paranoia he declared to be heredity. It may not be inherited directly, but the subjects of hysteria, epilepsy, alcoholism, the markedly eccentric person and the criminal are types of fathers and mothers most apt to breed the child who upon reaching manhood becomes the paranoiac.

The chief symptoms of the disease were given and those termed the smaller, and the difficulties in diagnosis pointed out. Secondary paranoia was described as a state in which the condition of paranoia is present as an incident in some other insanity. Really to know a paranoiac it is necessary to know his whole life history, and not only for an occasional day or two. The relation there might be between the secondary form and the disease itself Dr. Burr does not know. Regarding the hallucinatory type he saw no reason that this should be marked off as a special type, since hallucinations occur in pure paranoia. The mattoid condition was also described.

The legal side of the question presented many difficulties because the paranoiac shows a considerable amount of reasoning power and knows perfectly well the object of the examination. An added difficulty encountered arises from the confusion as to what paranoia means and as to who are the paranoiacs.

INSANITY, A DEFENCE IN HOMICIDE.

DR. ROBERT H. CHASE of the Friends Asylum, Frankford, outlined the cases in which insanity as a defence in homicide is not only legitimate but highly commendable. Two distinct forms of alienation frequently resorted to as a defence in homicide were mentioned as the so-called emotional insanity, and that much-abused form in psychiatry, paranoia. In discussing the term, "transitory insanity," he remarked that the claim that a man may be sane just before committing murder, insane when the shot is fired, and sane again as soon as the deed is done, seems to require more credulity than the majority of any community possesses. He had known only two cases in which the diagnosis of transitory insanity seemed justifiable. These were cited.

In the matter of expert testimony he concurred with Dr. Mills, that no system of official experts will ever succeed in this country, and that it is necessary "that the medical experts shall be of the highest order as regards intelligence, training and honest purpose." The question was raised why there could not be constituted, through the concurrence of the Medico-Legal Society and the Bar Association, a committee or board to pass upon the good standing and fitness of would-be lunacy experts before the courts. A number of regulative provisions might be necessary to such a system. To maintain the standard, withdrawal of the certificate from a licensed expert should be possible. Such certificate should be presented to the judge in place of the present crude method of qualifying. Difficulties in such a plan were admitted and the suggestion was made that perhaps after all, Wyleyism in expert testimony could best be "cured" by a good brisk application of gruelling, *à la Jerome*.

DR. CHARLES K. MILLS said that the community and even the profession to some extent did not recognize fully the fact that insanity and sanity are relative terms. Dr. Burr had shown that there were grades of paranoia from the man almost sane to the man easily recognized as insane. The responsibility of the man on trial was not to be fixed by the expert, his work being confined to what in his opinion was the state of mind of the man on trial and to giving his proofs.

Regarding expert testimony he did not believe that under the Anglo-Saxon system of laws there can be a satisfactory system of official experts. He believed that the present methods are the best that can be followed, but that the correct thing to do is to try to get good men for the work. Dr. Chase's suggestion he he thought not without some merit, but he doubted whether it would be constitutional. Reference was made to the underlying provision in the law that a man on trial for his life is entitled to every means of defence that can be given him by those who take up his cause in court. The judge, it was thought, might rule out a man on the committee. The only thing to do in matters of the kind under debate he believed to be to educate the community to the right standpoint.

DR. F. X. DERCUM believed that the future of psychiatry lies in the study of the morphology of arrested development. He divided insanity into two great groups of the infectious and the paranoiac type and gave the essential features of each. The word "paranoia," an ancient one, was used by Aristotle and Plato, and means "thinking beyond," or "beside of."

He did not think expert testimony in Pennsylvania in the bad condition attributed to it, but felt that the adverse opinion is due to the high ideals obtaining in this Commonwealth in the profession. He can recall but few instances in which a man called as an expert in court was grossly incompetent.

DR. JOHN B. CHAPIN stated that legal insanity implies a prolonged change from the normal mental state with delusions in which or because of which the criminal act is performed.

DR. ALFRED X. GORDON, in his discussion, gave his conclusions in the following propositions:

(1) The legal conception of responsibility is not in accordance with the principles of science and does not satisfy the practical exigencies of life.

(2) The dogmatic principles of law should be replaced by more real and vital, namely, by biological principles.

(3) A special psychiatric service should be established in prisons for a study of all criminals, or else an an alienist be attached to prisons, reformatory schools, houses of refuge.

(4) The function of the law should be not only to find criminality, but also to correct the criminal himself.

(5) Legal instruction should consist of study of crime as a social phenomenon and of the criminals as individuals.

(6) Administration of justice in such cases should be confided to a jurist and to an alienist.

(7) Administration of houses of correction should be placed in the hands of alienists and pedagogues because the majority of criminals bear stigmata of degeneracy which require special attention.

(8) Youthful criminals should be isolated and placed in special institutions in which proper medical and pedagogic measures will be most beneficial.

Finally, that conviction of criminals intellectually and morally defective is not only unjust but also useless, and that punishment should be replaced by prophylactic measures which form a part of social hygiene.

Book Reviews.

Psychology Applied to Medicine. Introductory Studies. By DAVID W. WELLS, M.D. 12mo. Pp. xiv, 141. With 16 illustrations. Philadelphia: F. A. Davis Co. 1907.

About one half of this little volume is devoted to the subject of hypnotism, and is simply a repetition of what has already been told many times before concerning it. The rest of the book contains a few chapters on certain elementary facts in psychology, chiefly upon some points concerning the psychology or rather the physiology of vision, but only a limited number of elementary topics are discussed, so that the book is quite inadequate as an introductory manual for the study of psychology. "Deformed" spelling mars the work.

Aids to the Diagnosis and Treatment of Diseases of Children. By JOHN MCCAW, M.D., R.U.I., L.R.C.P., Edinburgh. Physician to the Belfast Hospital for Sick Children. Third edition. New York: William Wood & Co. 1907.

This little book, on account of the thinness of the paper and the fineness of the print, contains much more than would appear at first glance, and is consequently more useful than most books of its class. It is, however, distinctly inferior to the larger textbooks. The arrangement of the book seems peculiar, at any rate from the American point of view. The subject matter is, on the whole, pretty good. The chapter on the blood diseases is especially good, that on artificial feeding extremely poor. Much more space is given to treatment than in most books. We trust, however, that most babies do not receive all that is recommended.

Practice of Medicine. A manual for students and practitioners. By HUGHES DAYTON, M.D. New York and Philadelphia: Lea Bros. & Co.

This is a small book, pocket size, a volume of the Medical Epitome Series. It is not a quiz compend in arrangement, but gives a concise short statement of the main facts regarding the subjects which might be expected to be discussed in the usual book on the practice of medicine. Much information will be found here in small compass and yet in readable form. The arrangement closely follows that in Osler's textbook of medicine.

The book is well printed on good paper. The use for such a book is rather limited. It is distinctly preferable to the usual quiz compend. It would be useful to a student for a rapid review of medicine in preparation for examination, and could be used with advantage in the clinic in connection with cases. Its small size is a valuable asset in this regard. The danger of all such books is that the student may substitute it for a more complete work and thereby lose in breadth of view. The apparent absence of gross omissions in discussing the various diseases in this book might encourage such a use. For this type, the book has been well made.

THE BOSTON

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THE CAUSE OF CARDIAC INSUFFICIENCY.

FREQUENTLY post-mortem examination of the heart in a case which clinically has been diagnosed myocarditis fails to show any very definite anatomical lesion beyond the evidence of moderate dilatation and some hypertrophy. Almost as often fatal cases of valvular lesion yield no gross anatomical evidence explanatory of the fatal cardiac insufficiency. The valvular lesion is there, it is true, but that appears to have remained unchanged in character for some time, and it is not very evident why, at this particular period, the heart should have gradually failed in its ability to do its allotted work.

Various attempts have been made to find a myocardial lesion which would explain these cases of cardiac insufficiency. In the earlier days great emphasis was put on fatty degeneration of the myocardium, and this explanation still finds favor with some of the English authorities on heart disease. But as Welch and others pointed out there is often no relation between the amount of fatty change and the degree of cardiac insufficiency, and in some cases with extreme degrees of fatty degeneration of the heart there is no clinical evidence of cardiac failure.

Under the influence of the Leipzig school, especially Krehl and Romberg, great importance was attached to the inflammatory changes in such hearts. They, in a thorough examination of hearts, showed the almost constant presence of small foci of interstitial myocarditis, and these they believed to be in large part the cause of the cardiac failure.

How such foci involving but a small part of the total area of myocardium could be so disturbing

to cardiac function was puzzling to many. Albrecht, in a monograph on the heart,[1] attempted to answer this by means of a study of cardiac muscle architecture which determined certain points as of great functional importance. The frequent occurrence at these of inflammatory foci might explain the cardiac failure, and such a distribution he believed he could demonstrate.

Aschoff and Tawara, in another monograph,[2] have criticised the views of Albrecht on the grounds that the cardiac architecture claimed by him has been deduced largely from a study of animal hearts and is a very inconstant arrangement in man. Moreover, they disagree with Albrecht in regard to the existence of distinct muscle cells in the heart which is one of his chief claims for a similarity of cell lesion in the heart with those in parenchymatous organs. Further, a number of nuclear and cell variations which Albrecht considers evidence of pathological change, Aschoff and Tawara believe within the limits of normal variation in myocardial structure.

Aschoff and Tawara have studied carefully and extensively hearts from one hundred and twelve cases in which cardiac insufficiency was to be anticipated. In these they fail to find any evidence of a progressive degeneration of the myocardium and no constant demonstrable histological changes to account for the cardiac weakness. Focal lesions they commonly find which they regard as the result either of the healing of areas of infarction or of the formation of certain proliferative foci which occur in association with rheumatism. However, there is no evidence of any causal relation between these and the cardiac insufficiency. Fragmentation of the heart muscle receives especial attention, but they conclude that this is largely a terminal event and in no way the cause of the cardiac failure. They fail to associate focal lesions with fibers of the conduction system of His except in cases of Adams-Stokes disease.

The failure of Aschoff and Tawara to find in the majority of cases any anatomical lesions as a cause of the cardiac insufficiency is disappointing. It was to be hoped that some association of focal lesions with the cardiac conduction system might be a satisfactory explanation for this condition. These observers, notwithstanding their thorough knowledge of this phase of cardiac structure, failed to find evidence of any such association. They seem to have succeeded in destroying the claims made for other reported anatomical causes and we are forced back to the functional explanation that the gradually increasing strain finally goes beyond the reserve force of the heart, and cardiac failure is the result. This was the view held before any of these anatomical studies were undertaken.

[1] Der Herzmuskel und seine Bedeutung für Physiologie, Pathologie und Klinik des Herzens. Ein Versuch zur Entwicklung einer allgemeinen Pathologie und Symptomatologie auf anatomischer grundlage. Berlin, 1903.

[2] Die heutige Lehre von den pathologisch-anatomischen Grundlagen der Herzschwäche. Kritische Bemerkungen auf Grund eigener Untersuchungen, Jena. 1906.

THE HALF-INSANE.

ALMOST all controversy springs from and thrives upon lack of definition. This is especially so with regard to insanity, which state has been variously defined, in different eras and from many viewpoints — that of the physician, the lawyer, the psychologist, the philosopher, the practical man. And little wonder, considering the almost infinite complexity of human psychism. Moreover, to define insanity accurately, one must first answer the question: What is mind? and who has ever done that successfully?

All gradations of the perturbed have been made, from the lovably daft to the hopelessly idiotic. And the point of view has, in the course of civilization, been constantly changing. That of the present day is quite ultrascientific, having been developed from the "rationalism" of Voltaire in the eighteenth century. This position will surely be modified by future generations. For it considers many insane, or at least half-mad, who in other ages were rightly lauded as geniuses, saints, benefactors and world-compellers. It ignores the legendary which is so dear to human nature; it takes no account of the emotional, the poetic, the soul-stirring — things which after all do make living somewhat more worth while.

Prof. J. Grasset, of the University of Montpellier, in France, has in his book "Demi-fous and Demi-responsables;" designated as half-insane (Lombroso would deem them afflicted with "genius-insanity") such men as Pascal, Comte, Balzac, Hugo, Molière, Byron, Tolstoi, Newton, Darwin, Wagner, Schiller, Chopin, Descartes, Cromwell, Goethe, Mozart, Beethoven, Ampère, Napoleon, and many another. Dante and Columbus have been placed in this category, and even Shakespeare!

But who would not, if he could, find place for himself among such notable company? Did St. Paul or St. Francis see visions? Did Beethoven "rough-house" the homes of his princely friends who sought to relieve his needs? Was Cæsar an epileptic? Was Napoleon a degenerate and a hypochondriac? Did Newton abstractedly stick

his fiancée's finger into his lighted pipe? (He died a bachelor.) Was Chopin a consumptive? Was Poe a chronic alcoholic? Was Schopenhauer a misanthrope? Were such as these neurotic or hysteric or did they suffer from vicious heredity? What of it? Where would humankind be to-day had they not lived?

Grasset has well sought to ascertain the just status of the "Demi-fou" before the Law, believing that he should not be held as responsible for his acts as the wholly sane. He would not, as is generally done, divide humanity into two hard and fast groups — the sane and the insane; the group which is or should be placed under confinement and that which confines it. He wisely believes that there are degrees between normal psychism and dementia. And a part of his work is given to the discussion of Demi-responsibility, Limited Responsibility and Attenuated Responsibility, to the end that such distinctions may find place in French jurisprudence. And it seems, indeed, that they have already been accepted in many continental courts, though not at all in our own or in those of Great Britain.

HARVARD MEDICAL ALUMNI FUND.

It will be remembered that about two years ago a committee of the Harvard Medical Alumni Association inaugurated a movement toward securing funds from the graduates of the Medical School for the purpose of increasing the efficiency of teaching. A report of progress shows that the result of this movement has been most encouraging. Responses to the appeal have been received from every part of the country so that already a substantial amount has been raised as a nucleus for what is hoped may be a fund of increasing size.

Considering the many calls which are being made upon the medical profession for contributions of various sorts, it should certainly be gratifying to the committee having this matter in charge, that an excellent beginning has been made and that already enough money has been secured to further the main object for which subscriptions are desired. It will, no doubt, take some years before graduating classes of the medical school will come to look upon their period of study as do students in academic departments in our various colleges. There is, however, ample evidence to show that in the past few years individual classes have been more united than ever before, and it is not to be doubted that so far as the Harvard School is concerned the new buildings with the rooms provided for students' use will go far toward fostering a spirit of class loyalty, which means loyalty to the school itself, that has not hitherto been in evidence. It is, therefore, confidently to be expected that the plan of an alumni fund, auspiciously started, will gain in strength as the years go by.

MEDICAL NOTES.

Dr. Charles H. Peck Honored. — Dr. Charles H. Peck, the Senior Attending Surgeon to the French Hospital of New York, has recently received from the French Government through the minister of Public Instruction and Fine Arts the decoration of Officier de l'Instruction Publique.

Officers of the American Society of Sanitary and Moral Prophylaxis. — At the meeting of the American Society of Sanitary and Moral Prophylaxis, held April 11, 1907, the following officers were elected for the ensuing year: President, Dr. Prince A. Morrow; Vice-Presidents, Dr. Stephen Smith, Prof. Edwin R. A. Seligman and Mr. Francis Lynde Stetson; Secretary, Dr. Edward L. Keyes, Jr.; Treasurer, Dr. Smith Ely Jelliffe.

Death from Ex-Ray Burns. — It is announced that Prof. Wolfram C. Fuchs, of Chicago, has finally succumbed to carcinoma, set up by exposure to the x-rays. He had been affected for about three years and had had various operations performed to check the spread of the disease, but ultimately without avail, when the breast became affected. The list of deaths from the use of the x-rays in this country is somewhat appalling. Five have been reported, one of the most recent being Dr. Louis A. Weigel, of Rochester, N. Y., who underwent a very similar experience to that which finally ended Professor Fuchs' life.

Retirement of Professor Politzer. — The retirement of Prof. A. Politzer from the professorship of otology at the University of Vienna is announced, after a service as teacher of forty-six years. He is now obliged to vacate his chair because of the age limit. In recognition of his great services to otology and to medicine in general, a committee has been formed to execute a medal bearing his likeness. On his retirement it is proposed to present him with a copy of this medal in gold, with an address containing the names of the subscribers. The committee is of an international character, and it hopes that

contributions may be received from various countries. The treasurer of the committee is Dr. D. Kaufmann, Vienna, VI, Mariahilferstrasse 37.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, May 1, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 49, scarlatina 31, typhoid fever 5, measles 18, tuberculosis 48, smallpox 0.

The death-rate of the reported deaths for the week ending May 1, 1907, was 21.48.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, April 27, 1907, was 257, against 225 the corresponding week of last year, showing an increase of 32 deaths and making the death-rate for the week 22.26. Of this number 133 were males and 124 were females; 255 were white and 2 colored; 163 were born in the United States, 89 in foreign countries and 5 unknown; 44 were of American parentage, 177 of foreign parentage and 36 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 50 cases and 9 deaths; scarlatina, 36 cases and 0 deaths; typhoid fever, 6 cases and 1 death; measles, 27 cases and 0 deaths; tuberculosis, 46 cases and 27 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 33, whooping cough 0, heart disease 27, bronchitis 9 and marasmus 1. There were 12 deaths from violent causes. The number of children who died under one year was 42; the number under five years 63. The number of persons who died over sixty years of age was 57. The deaths in public institutions were 78.

There were 10 cases and 2 deaths reported from cerebrospinal meningitis during the week.

CLEAN MILK. — At the recent quarterly meeting of the Massachusetts Association of Board of Health the cleanliness of milk was under discussion. Pasteurization found few supporters among those who spoke. The general feeling was expressed that such an artificial means of treatment misses the main issue, which is that the conditions of the milk as produced and marketed should be maintained at a high standard, and that, if this were done, Pasteurization or other means of sterilization would be unnecessary.

A GIFT TO THE FLOATING HOSPITAL. — Mrs. Lamont G. Burnham has presented to the Floating Hospital the steam yacht, *Pilgrim*, formerly a cup defender. The vessel is now equipped with twin engines and twin boilers, which, it is suggested, may be used in the new boat of the Floating Hospital, for which no provision for self-propulsion has yet been made, owing to lack of funds. The advantage of being propelled by her own power will increase the usefulness of the new hospital boat and will also be a saving on account of doing away with the cost of towing.

THE BOSTON INSTRUCTIVE DISTRICT NURSING ASSOCIATION. — We have frequently taken occasion to comment on this admirable charity. The growth of this work has been steady and gratifying so that now there are twenty-two regularly employed nurses who devote their time to visiting in the homes of the poor. The following remarks by Dr. Elliott P. Joslin, given at the annual meeting, express in general the feeling of the community, both lay and professional, towards the work:

"Is it not a comfort that this is a society which does not need to be reformed? It is sufficient to watch your growth from year to year to be assured of your usefulness in this community. This last year you have increased your activities in many directions, both in Boston and in the suburbs. You have increased your district work, you have started a Nurses' Home Training School, and have doubled your work among the school children as well as that among tuberculous patients. Surely the public will be satisfied with your progress, and I predict you will find its response to your appeal for funds more hearty and liberal than ever before.

"There are so many reasons why you should receive aid. You carry the chief advantage of wealth to the homes of the sick poor, namely, the means to have their own cared for in illness. Lord Rosebery would certainly be one of your patrons if he lived in Boston. It is easy for you to ask gifts for such a charity, and natural for one to respond. I think you will find that those who have suffered most from illness in their own homes will be your strongest friends."

NEW YORK.

A HOME FOR INCURABLES. — Mrs. Henrietta M. Parker, of New York, has filed a contract with the county clerk of Middlesex County, New Jersey, for the erection of a home for incurables, as a memorial of her late husband. The institution is to be named the "Parker Home for Incurables," and is to be located at New Brunswick, near which the Parker family has its country seat. The building, constructed of brick and marble, will be situated on a bluff overlooking the Raritan

River, and will have thirty-one rooms, in addition to two hospital wards, together with offices, sun parlors, baths, nurses' quarters, etc. There will be a resident medical staff, and a number of prominent New Brunswick physicians and surgeons have promised their services on the visiting corps. The home will be the only institution exclusively devoted to incurable cases in the state of New Jersey, and the generous gift of Mrs. Parker is widely appreciated.

Government Department of Health. — At the annual meeting of the American Association for the Advancement of Science, in June last, a committee of one hundred was appointed to take such steps as were in its power towards the creation of a Government Department of Health. On April 18, some twenty of the members of this committee met in the Bar Association building in New York, and, after an extended discussion of the subject, elected a special committee of seven, to carry on the active work of the movement, and the following vice-chairmen of the general committee of which Professor Fisher is chairman: President Eliot, of Harvard, Andrew Carnegie, Dr. Lyman Abbott and Prof. Felix Adler, of New York, John D. Long, ex-secretary of the Navy, Dr. William H. Welch, of Johns Hopkins University, Archbishop Ireland, President Angell, of the University of Michigan, and Judge Lindsay of the Juvenile Court of Denver.

Hospital Saturday and Sunday Association. — The distributing committee of the Hospital Saturday and Sunday Association met on April 26, and gave out from the undesignated fund of the collection of 1906 the sums awarded to the various institutions represented in the association. The amounts over $2,000 were distributed as follows: Montefiore Home and Hospital for Chronic Invalids, $8,400; Mount Sinai Hospital, $8,400; St. Luke's Hospital, $4,647; Roosevelt Hospital, $4,428; German Hospital and Dispensary, $4,119; Lebanon Hospital, $4,074; Hospital for Ruptured and Crippled, $3,673; New York Post-Graduate Hospital, $3,504; New York Infant Asylum, $3,499; Society of the Lying-in Hospital, $3,295; Orthopedic Dispensary and Hospital, $3,105; St. Mary's Free Hospital for Children, $2,942; Nursery and Child's Hospital, $2,926; New York Home for Incurables, $2,298; Beth Israel Hospital, $2,271.

These allotments were made, as usual, on the basis of the amount of free work done by each institution. The total collection this season, amounted to $103,110, the largest recorded in the history of the association; and of this sum, $1,555 was the gift of Mr. and Mrs. James Speyer, who announced previously to the collection that they would duplicate whatever amount in excess of $100,000 should be contributed. Of the total, $14,610 was designated to particular institutions by the donors, and, after the deduction incident to the expenses of the collection, there remained the handsome sum of $84,000 at the disposal of the distributing committee.

Appointments, Medical Department at Fordham University. — The following additions to the teaching corps of the medical department of Fordham University, situated at Fordham, in the Borough of the Bronx, have recently been made: Dr. Thomas Darlington, President of the Health Department, Professor of Sanitary Science; Dr. John J. Cronin, Adjunct Professor of Sanitary Science; Drs. Robert M. H. Dawbarn and John A. Bodine, Professors of Clinical Surgery; Dr. George Franklin Shiels, formerly of the University of California (who as an army surgeon in the Philippines received a Congressional medal of honor for conspicuous bravery), Lecturer on Gun-shot Wounds and Military Surgery; Dr. William Edwards Fitch, late of Savannah, Lecturer on Surgery. At this medical school, four lectures, which were free to the profession of the city, were given during the month of April by Dr. Darlington, Dr. John S. Billings, Jr., Chief of the Division of Communicable Diseases of the Department of Health, and Dr. John J. Cronin, also of the Health Department, on "Typhoid and Other Communicable Diseases," "City and Public School Health," and other topics of interest to practitioners.

Opening of Buildings, Harlem Hospital. — The new buildings of the Harlem Hospital which belongs to the group of city institutions known as "Bellevue and Allied Hospitals," governed by a special board of trustees, were informally opened on April 27. They are situated on Lenox Avenue, between 136th and 137th streets, and constitute a thoroughly equipped modern hospital, with accommodations for 250 patients and special provisions for a very large ambulance service. The main building, a handsome structure of red brick and light-colored stone, is one of the most notable architectural features of Harlem. The institution has entirely outgrown its old quarters, a number of frame buildings situated in a location very inconvenient for present-day needs and erected when Harlem was a straggling village along the shore of the East River.

A Milk Dealer Fined. — A milk dealer whose depots are at Davenport Centre, Delaware County, was recently fined $1,800 by Justice Ford in the Supreme Court, after a jury had found him guilty of skimming his milk before shipping it to New York. This is probably the largest fine ever imposed for a similar offense, and the testimony on which the defendant was convicted was furnished by two State inspectors of the Health Department, who while in hiding personally observed the skimming of the milk, and then followed the product to the points where it was disposed of.

Bequest to Presbyterian Hospital. — By the will of the late Peter J. Cumming, of New York, his residuary estate, which is said to be large, is bequeathed to the Presbyterian Hospital for the purpose of endowing a room or certain beds, in perpetuity, in the name of the testator. Mr. Cumming was greatly interested in the Broadway Savings Institution, of which he was president for fifty years, retiring in 1905, and it is stipulated in the will that the endowed room or beds shall be used, under the direction of the executors, for the benefit of such deserving employees or depositors of the savings bank, as may require hospital care for which they are unable to pay.

Obituary.

HON. ALAN PERCY HERBERT, M.D.

The newspapers of London and Paris have recently announced the death in the latter city of the Hon. Alan Percy Herbert, M. D., who for more than forty years had been in the active practice of his profession in the city of Paris.

He was the second son of the third Earl of Carnarvon by the eldest daughter of Lord Henry Howard, and niece of the twelfth Duke of Norfolk.

His name medically has long been a familiar one to both the English and American resident colony in Paris, and the intelligence of his death will also come to a large number of his former American patients, both at home and abroad, with that nearness of loss to which the personal contact of his profession gives especial meaning.

Educated at Harrow and Christ Church, Oxford, almost immediately on completing his education in England, Doctor Herbert began his medical studies in Paris, where after a most thorough preparation he was appointed, by competitive examination, an interne to the Paris hospitals.

Later on in 1871 when Sir Richard Wallace founded the Hertford British Hospital, Dr. Herbert was made consulting surgeon to that well-known, admirably conducted institution.

Remaining at his post throughout the entire siege of Paris in the Franco-German war, his loyalty to his chosen profession was heroically evinced by an utter ignoring of self in his efforts to relieve the suffering and want in which he also shared during those tragic days in the imprisoned French capital. His able assistance to the United States Legation in its effective service rendered to the military authorities has never been forgotten.

At this time a Chevalier in recognition of these valuable services, he was later made an Officier of the Legion d'Honneur.

Dr. Herbert's close and varied intercourse with the numerous French, English and American coteries of science, literature and art in Paris brought his acquaintance to many to whom it was as delightful as it was appreciated and enduring. Possessing a nature of marked gentleness and delicate thought for others, he had a happiness of temperament which in health seemed to continue the playful mirth and buoyancy of youth. Underneath it all was a basis of firmness and strength always ready for the demands of his profession and equally sustaining to those about him. His retiring simplicity of manners while having a quiet distinction were felt rather than observed from their unvarying courtesy.

By the constancy and fulfilment of his beneficent resolve in early youth to acquire the human skill to alleviate the distressing ills of others, to the sacrifice of that greater ease of circumstance which birth and station had placed before him, Dr. Herbert fully transcribed in his life the ancestral motto of his family, "*Ung je servirai*" and as truly added a new and lasting luster to the distinction of its honored past.

Of the just remembrance and future recompense to follow such useful and unselfish lives, Dr. Holmes has told us in his benign song of gratitude for the blessings they bestow:

"No labored line, no sculptor's art
Such hallowed memory needs;
His tablet is the human heart,
His record loving deeds.

"Enough is there a world of love;
No more we ask to know.
The hand will guide thy ways above
That shaped thy task below."

A. H. W.

Current Literature.

The Journal of the American Medical Association. April 13, 1907.

1. Spiller, W. G., and Allen, A. R. *Internal Hydrocephalus.*
2. Howard, C. P. *Myxedema.* (Continued article.)
3. *Camp, C. D. *Pathology of Paralysis Agitans.*
4. *Leach, W. J. *Acute Otitis Media.*
5. *Brown, O. H. *Differences in the Physiologic Action of the Salts of an Alkaloid.*

6. Hynson, H. P. *Nostrums and Proprietaries.*
7. Carson, S. C. *The Modern Surgeon.*
8. *Elliott, A. R. *Clinical Observation on Blood Pressure in Arteriosclerosis and Bright's Disease, with Suggestions Concerning the Therapeutic Control of Persistent High Blood Pressure.*
9. Holloway, T. B. *Gonococcus Conjunctivitis.*
10. *Knorr, E. A. *Study of the Opsonins.*
11. *Clark, J. B. *Gonorrheal Prostatitis.*
12. Zenner, P. *Traumatic Neurosis.*

3. Camp has made a careful critical study of the post-mortem findings reported by others, and noted by himself in his own 14 cases of paralysis agitans. In the central nervous system the most common abnormalities were the fibrosis of capillary blood-vessels of the spinal cord, upon which much stress has been laid, and diffuse overgrowth of the glia of the spinal cord. Neither of these changes, however, was constant, and neither can be said to differ from senile changes frequently found without paralysis agitans. In the muscles, in all of 9 cases examined, constant changes were found, agreeing with the observations of others. Whether these changes are the prime cause of the disease, or are merely incidental to the course of the disease, perhaps the result of circulating toxins, is still uncertain. Recently attention has been directed toward a possible connection of disorder of the parathyroid glands with paralysis agitans. In parathyroidectomized dogs, tremor, rigidity, convulsions, dyspnea and death are observed. It has been argued that a gradual diminution of the internal secretion of the para thyroid might well modify this course of events into the symptom complex of paralysis agitans. In two of his cases Camp was able to examine the parathyroid glands and in both were found pathologic conditions. These observations, in connection with Berkley's report of marked improvement of 9 out of 11 cases treated with parathyroid extract, suggest strongly that paralysis agitans is a toxemia due to alteration in the internal secretion of the parathyroid glands. [Other observers have found the parathyroids normal.]

4. Leach describes acute otitis media as due most often to nasal or pharyngeal disease, catarrh or adenoid. The symptoms are pulsating pain in the ear and face, sometimes fever, delirium and convulsions. Examination shows redness and bulging of the drum. The treatment in the early stages is simply to relieve the pain and to treat the nose and throat. To relieve pain, Leach uses a hot douche of boric acid solution followed by instilling within the external canal a 4% solution of cocain. If the bulging and pain continue after thirty-six hours he incises the drum, producing local anesthesia by a 10% solution of cocain in 1-1000 solution of adrenalin. Incision is necessary to prevent spontaneous rupture, which frequently does not close. After puncture the ear is cleaned out, boric acid powder is blown in and cotton inserted. When the discharge has ceased, Politzerization is practiced. Removal of adenoids, etc., should be performed early without waiting for the drum to heal. With proper treatment the prognosis is good; if, however, the condition is neglected it may lead to destruction of the middle ear, infection of the mastoid, and become chronic. If symptoms persist three days after incision, with tenderness over the antrum, fever, chills and sweats, suddenly ceasing or very profuse purulent discharge, the mastoid should be drained.

5. Brown finds that different salts of the same alkaloid have decided differences in action, a fact which is not recognized in the standard works upon pharmacology. In his work he has dealt mainly with strychnin, quinin and morphin, and their actions upon motile protozoa.

8. Elliott, in 30 cases of arteriosclerosis, evidenced by thickening of peripheral arteries, has noted a positive arterial hypertension in only 6. In 60 cases of chronic Bright's disease, on the other hand, the average blood pressure was 190 mm. Elliott feels that a blood pressure of 200 mm. is good evidence, even in the absence of other signs, of renal insufficiency. In treatment of hypertension the inadvisability of vasodilators is emphasized. High blood pressure must be regarded primarily as a vascular reaction against toxins in the circulating blood, continuing until finally cardiac failure supervenes. The increased tension is necessary to compensate functional deficiency of the kidneys, and while it exists the patient enjoys comparative comfort, whereas when the secondary low tension occurs symptoms increase. Broadbent says "it is not high tension, but low tension that is to be feared in Bright's disease." It is important to plan the diet with reference to disintoxication. The nitrites are to be avoided except in special conditions, such as angina pectoris and apoplexy prodromes. Symptoms of weakening of the heart are indications for cardiac stimulation.

10. Knorr reports the results of experiments performed to determine certain points with regard to the variations of the opsonic index due to variations in the technic of its estimation. The question considered deals only with details of laboratory procedure, not with principles of general interest.

11. Clark believes that prostatic inflammation is always present in gonorrhea of the posterior urethra. Acute prostatitis may be classified as catarrhal, follicular, or parenchymatous, severe grades of the last often leading to abscess. The catarrhal form is by far the most common, and its symptoms are indistinguishable from those of the accompanying posterior urethritis. The diagnosis is made only by the finding of prostatic casts in the urine. The follicular form is similar clinically, but its presence is detected by localized areas of tenderness found on digital examination. In the parenchymatous form the prostate is swollen, smooth, and more or less tender. Urination and also defecation are painful. The milder cases occur without fever, but the more severe cases may be accompanied by fever and chills, with great pain, tenderness and swelling, especially in cases which go on to suppuration. Prostatic abscess should be drained early. Untreated cases rupture most often into the urethra, next most commonly into the rectum. The mortality of such cases is high. The treatment of all forms of acute prostatitis is mainly palliative, with abstinence from massage and other forms of manipulation; the treatment of abscess is purely surgical. Chronic prostatitis is of greater importance, since it is more common as a source of the infection of women, cases with acute prostatitis seldom being capable of intercourse. Chronic prostatitis has few subjective symptoms except those of sexual neurasthemia with referred pains, erections, premature ejaculations and decreasing sexual ability. The diagnosis is made from the somewhat increased size and irregular outline of the prostate, and from the presence of pus in the prostatic fluid, obtained by digital compression. Gonococci have been found in this discharge up to three years from the date of infection. In treatment the main reliance in chronic prostatitis is prostatic massage performed systematically once, twice, or three times a week, the bladder, being first filled with mild antiseptic solution, which is voided at the end of the process. Massage, however, must not be performed if any trace of acute inflammation persists.

[F. W. P.]

The Bulletin of the Johns Hopkins Hospital. April, 1907.

1. Osler, W. *On the Library of a Medical School.*
2. Raney, M. L. *Some Ana of the Marburg Collection.*
3. *Kelly, H. A. *Method of Preserving Outlines of Visceral Lesions.*
4. *Ford, W. W. *A Clinical Study of Mushroom Intoxication.*
5. *Egdahl, A. *Acute Pancreatitis.*
6. Ingalls, N. W. *Vena Cava Superior Receiving Two Upper Right Pulmonary Veins and Opening into Both Atria.*

3. Kelly describes his method of preserving for purposes of record the outlines of abdominal tumors and of other conditions capable of graphic representation. After outlining the tumor with a skin pencil, a sheet of transparent material is laid over the abdomen, the anterior superior spines, the symphysis and the umbilicus are marked upon the paper, and the outlines drawn upon the abdomen are then traced off. This record is marked with the patient's name and the date and is filed away. This method is especially valuable in demonstrating changes from month to month in tumors, such as fibroids.

4. Ford distinguishes between the clinical symptoms produced by various kinds of poisonous mushrooms. By far the majority of fatalities from mushroom poisoning are caused by the *Amanita phalloides*. Symptoms appear only after a prodromal stage of six to fifteen hours, beginning then with sudden extreme abdominal pain, with vomiting and diarrhea. The vomitus and stools contain blood. Paroxysms of pain and vomiting alternate with periods of remission. There is rapid loss of strength; the Hippocratic facies is pronounced. Within two or three days coma comes on, soon followed by death. The active principle of the *Amanita phalloides* is not muscarin, but a substance little understood which has been called *Amanita-toxin*. The treatment is that of poisoning in general, together with morphia and other palliative measures. No drug has any antidotal effect; the only hope of successful treatment in the future lies in antitoxins which are said to have been produced. The *Amanita muscaria* not uncommonly causes cases of poisoning. Symptoms appear within an hour or two after ingestion, with vomiting and diarrhea, severe headache, contracted pupils, delirium and finally violent convulsions and death. The active principle is muscarine; as an antidote atropine has been used with considerable success. Other less common poisonous fungi are described. To avoid poisoning it is urged that only common and easily recognized species be used as food. An extensive bibliography is appended.

5. Egdahl has analysed 105 published cases of acute pancreatitis, with the purpose of determining the relative frequency of the different factors which have been considered to have etiological significance. Most prominent among these is the action of gallstones in causing a retrojection of bile into the pancreas. Bacterial invasions of various kinds, from the intestine or from other sources, undoubtedly play an important part. Entrance of gastric juice through the ducts of the pancreas has been thought by some to occur. The action of ferments originating in the pancreas, particularly the action of steapsin in the production of fat necrosis, has attracted much attention. Egdahl from the results of his studies concludes that gallstones are probably the most common single cause of pancreatitis, occurring in 42% of the cases. Gastro-intestinal disorders are the next most common cause, being present in 30%. Seventeen out of the 32 cases of this group gave a history of alcoholism. It is probable that retrojection of bile may be caused by these intestinal disorders. The organism most commonly present is *B. Coli communis;* next come the streptococcus and the staphylococci. Acute pancreatitis may occur in a large variety of conditions of which typhoid fever, tuberculosis, mumps, trauma, syphilis, emboli, appendicitis, malaria and gastric ulcer deserve special mention.

[F. W. P.]

THE LANCET.

APRIL 6, 1907.

1. HANDLEY, W. S. *The Pathology of Melanotic Growths in Relation to their Operative Treatment.*
2. SAVAGE, G. H. *The Increase of Insanity.*
3. *CHILDE, C. P. *The Area of "Acute Abdominal Conflux" and the "Incision of Incidence."*
4. CRACE-CALVERT, G. A. *Amyl Nitrite in Hemoptysis.*
5. ALEXANDER, W. *Aseptic and Septic Midwifery at the Liverpool Work-house Hospital.*
6. *SAVILL, A. F. *A Case of Multiple Circumscribed Lipomata Treated with Ethylate of Sodium.*
7. SYKES, J. F. J. *The Teaching of the Hygiene of the Expectant and Suckling Mother.*
8. CAMPBELL, H. *The Role of the Blood Plasma in Disease.*

3. In cases of acute abdominal disorder where the exact source of trouble cannot be located, it has been the custom with many surgeons to make a median incision below the umbilicus. Childe does not agree with this method, and urges a right rectus incision in all these cases. Within an area bounded on the left by a vertical line from the seventh rib one inch from sternum on the left down to Poupart's ligament, and on the right by a line vertically upwards from the right anterior superior spine, lie the organs which in 90% of cases will be the ones affected in any acute abdominal condition. This area he calls the area of "acute abdominal conflux," and the incision in the center of this area the "incision of incidence." He classes acute abdominal conditions in three groups: (1) those which can only occur within this area, (2) those that may occur within or without this area, and (3) those that can only occur outside the area. Group I is overwhelmingly large and Group III insignificant, though slightly larger in the female owing to the possibility of various pelvic conditions. The incision should commence at the level of the umbilicus and be continued downward.

6. Savill reports a case of multiple lipomata in a man somewhat alcoholic, who for years had suffered from deficient arterial tone, *i.e.*, his hands and feet were blue and mottled even in warm weather and in cold weather or after a heavy meal became white and numb. Savill cites a theory which connects the growth of these lipomata with deficient local circulation. Operative procedures were impossible owing to the number of tumors. To increase the local circulation each lipoma was regularly painted with sodium ethylate, and in addition, massage, exercise and abstinence from alcohol were prescribed. The lipomata slowly disappeared, leaving only small fibrous remains, and the cure seems to have been permanent.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

APRIL 6, 1907.

1. CAMERON, H. C. *Lord Lister and the Evolution of Wound Treatment during the Last Forty Years.*
2. HORSLEY, V. *Dr. Hughlings Jackson's Views of the Functions of the Cerebellum as Illustrated by Recent Research.*
3. RIDDELL, J. S. *On Iodine-Spirit Catgut.*

THE PRACTITIONER.

APRIL, 1907.

1. HERMAN, G. E. *The Treatment of Post-partum Hemorrhage.*
2. *COWAN, J. *The Myogenic Theory.*
3. CHILDE, C. P. *Six Cases of Ruptured Ectopic Gestation. Five Ex-sections; Four Recoveries.*
4. THOMSON, H. C. *Clinical Lecture on Diseases of the Nervous System.*
5. *LANGMEAD, F. *On the Relationship between Simple Posterior Basic Meningitis and Cerebrospinal Fever.*
6. HUTCHINSON, W. *What is Fever?*
7. *FENNELL, C. H. *Juvenile General Paralysis.*
8. HERTZ, A. F. *Notes from Germany on the Value of Rontgen Rays in Medical Diagnosis.*
9. FLETCHER, H. N. *The Use of Antipyrin as a Sedative in Some of the Common Disorders of Infancy and Childhood.*
10. MOORE, F. C. *Diseases of the Stomach. A Review of Some Recent Works.*

2. Cowan gives a careful and detailed consideration of the physiology of the heart, its contractions and to extrasystole with especial reference to heart block. He discusses the recent investigations along these lines by Mackenzie, His and others and reviews the entire subject in a very satisfactory way.

5. Since attention was first called to posterior basic meningitis by Barlow and Gee in 1878, the question has often arisen as to whether it was a disease *sui generis* or only a variation of epidemic cerebrospinal meningitis. Posterior basic meningitis is a disease of infancy. Retraction of the head is marked; in two cases the author has seen it necessary to put a pad between occiput and sacrum to prevent ulceration. About 33% of these children are blind. Dr. Still grew a small diplococcus of "readier growth and greater vitality" than the meningococcus. The differences between this disease and typical spotted fever seem to be one of degree only, and the writer is convinced that they are one and the same.

7. Fennell discusses 20 cases of juvenile general paralysis. This condition is by no means rare among the degenerative mental conditions of early life, and on account of its absolutely bad prognosis it is important to be able

to differentiate it from other less serious mental conditions. The average age of onset was seventeen years. The cardinal signs are iridoplegia, affection of speech, alteration of deep reflexes and muscular tremors. The pupils are unequal and irregular. As the disease progresses diagnosis becomes more difficult. Post-mortem are found signs of a typical chronic diffuse meningo-encephalitis, identical with the changes found in the adult form. There is nearly always a history of parental syphilis.

[J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 13.
MARCH 28, 1907.

1. LOEFFLER, F. *The Twenty-fifth Anniversary of the Discovery of the Tubercle Bacillus.* (Concluded.)
2. *DIETRICH, A. *Results in the Experimental Investigations of Cancer.*
3. *LITTEN, M. *Pneumonia Following Contusion of the Chest Wall.*
4. TSCHISTOWITSCH, N. J. *Pseudoleukemia with Intermittent Fever.*
5. *ELISCHER, J. V. and ENGEL, K. *Mediastinal Tumor Treated by the X-rays.*
6. SILBERMANN. *Treatment of Graves's Disease.*
7. GERBER. *Kosmetic Operations on the Nose.*
8. LEVY, M. *The Mortality of Ear Disease and Its Significance in Life Insurance.*

2. Dietrich reviews briefly the results of the various experimental investigations into the etiology of cancer. He remarks that all the most careful investigators are agreed that there is no ground for the parasitic theory of cancer growth. Recent animal experiments have led us back to the view, which pathological anatomy has always maintained, that the cause of tumor growth lies in the tumor cell itself, and a complete understanding can only be obtained through a careful study of its biological conditions.

3. Litten reports a case of pneumonia following a blow on the chest (Kontusionspneumonie), chiefly interesting from a medico-legal aspect. He distinguishes these from traumatic pneumonias in that there is no visible sign of injury to the chest wall. Rupture of the expanded lung has been proved to occur from trauma without any external signs of injury, and it is probable that congestions thus produced may become the seat of pneumonic processes. Such processes are not necessarily immediately under the part which receives the injury, but may be on the opposite side. The etiology is of the usual sort, pneumococcus, Friedländer's bacillus, or streptococcus, and the symptoms are precisely like those of ordinary pneumonia. The course is usually shorter and the fatal cases more common, with a tendency to sudden death, due apparently to the condition of shock, induced by the injury. The author has seen 14 cases of such pneumonias directly following and, in his opinion, attributable to an injury. [L. G. M.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT. No. 12.
MARCH 19, 1907.

1. *MANCHOT, C. *A New Method of Administering Phosphorus to Children.*
2. HANS, H. *The Causes of Difficulty in Removing the Canula after Tracheotomy in Diphtheria.*
3. HAENTSENS, A. H. *The Absence of Phagocytosis in Absorption of the Complement.*
4. *TESCHEMACHER. *The Continuance of Polyuria After the Disappearance of Sugar in Diabetes Mellitus.*
5. BÄUMLER, E. *A Report of 350 Extirpations of the Lachrymal Sac, with Remarks.*
6. DEUTSCHMANN, R. *The Treatment of Separation of the Retina.*
7. LEICK, B. *The Treatment of Typhoid Fever with Pyramidon.*
8. EISENBERG, H. *Iodofan, a New Organic Preparation of Iodin, A Substitute for Iodoform.*
9. BULL, P. *A Case of Teratoma Combined with Meningocele.*
10. WAGNER, T. *A Case of Polyserositis.*
11. NÄCKE, P. *Dermatological Reports.*
12. HORNUNG. *Aspirin as an Analgesic in Renal Colic.*
13. *VORSCHÜTZ, J. *The Treatment of Cerebro-spinal Meningitis with Bier's Passive Congestion and Lumbar Puncture.* (Concluded.)

1. The two chief disadvantages in the internal use of phosphorus are its poisonous effects noted in a few rare instances, and the fact that it is instable and loses its efficacy after standing a few weeks. Manchot experimented with subcutaneous injections of phosphorus, and found that they were followed in atrophic children by a rapid increase of weight. He was forced, however, to abandon this form of administration, owing to the occurrence of abscesses at the site of injection. He then looked for an organic compound of phosphorus, and hit upon hemp seed. The seed of the Russian hemp contains larger amounts of phosphorus than any other plant which is used as food. He administered it in the form of a soup made from hemp-seed meal. Cases of infantile atrophy and rachitis thus treated showed prompt gain in weight, and improvement in the general condition.

4. Teschemacher has noticed that polyuria may continue for some time in diabetes after the urine has become free from sugar. This does not include those cases complicated with hypertrophy of the prostate, in which the polyuria is due to the obstruction to the outflow of urine. In a third group belong the rare instances in which diabetes mellitus has changed into diabetes insipidus. Teschemacher reports three such cases; in the third, glycosuria occured at the age of three years, probably as the result of an inflammation of the brain. After a year the sugar disappeared from the urine, and diabetes insipidus followed, lasting thirteen years, at the end of which time glycosuria appeared again to last eight months.

13. Vorschütz gives a good review of the present state of our knowledge concerning epidemic cerebrospinal meningitis, and recommends for treatment a combination of the use of passive congestion with frequent lumbar punctures; of five cases thus treated, one died. He performs lumbar punctures whenever the fever is high, and when there are signs of increased intracranial pressure. Passive congestion is applied for twenty hours each day by means of a rubber bandage about the neck. This should be put on just tight enough to cause moderate cyanosis of the face. The bandage should be removed during lumbar puncture. The advantages of passive congestion consist theoretically in the increased amount of bacteriocidal substances brought to bear on the inflammatory process, and the increased exudation of lymph which brings fresh leucocytes to the spot, and in combination with the lumbar puncture causes a flushing of the cerebrospinal canal. From a practical point of view, it seemed to diminish the headache and was grateful to the patient. [The number of cases treated is too small to draw conclusions from, but the method is certainly rational. W. T.]

BERLINER KLINISCHE WOCHENSCHRIFT. No. 11.
MARCH 18, 1907.

1. *BAISCH, K. *Hyperemesis in Pregnancy.*
2. *LINDENHEIM, H. *Fever Following the First Use of Mercury in the Early Stage of Syphilis.*
3. *HOKE and MENDE. *Katzenstein's Method for Testing the Function of the Heart.*
4. *MÜLLER, R. *Protargol Salve as a Means for Promoting the Healing of Wounds.*
5. ERHLICH, P. *Chemotherapeutic Studies on Trypanosomes.* (Continued.)

1. Excessive vomiting in pregnancy may be due to one of three causes, viz., (1) irritability of the vomiting center in the medulla, (2) irritability of the stomach, (3) uterine abnormalities, including displacements, the absorption of abnormal chemical substances, etc. The great majority belong to the first class, and are cases of neurasthenia and hysteria. In others, previous over-sensitiveness of the stomach points to that organ as the cause. Uterine displacements probably cause vomiting by reflex action. In a small number, a toxic action must be assumed, the formation of some abnormal chemical substance, or of some normal substance in undue amounts. The treatment recommended by Baisch is as follows: rest in bed, absolute starvation for twenty-four hours, with an ice-bag or

hot water bottle on the abdomen. Then small amounts of cold milk, followed by a very gradual return to a normal diet. If this treatment is not effective within a few days, the patient should be transferred to a hospital, where the mental effect of isolation and change of surroundings is often promptly curative. In cases of the third group, sedatives are indicated, especially bromides, morphin, and scopolamin (hyoscine hydrobromate). The weight curve must be carefully followed, and if in spite of treatment vomiting persists, and the weight reaches a dangerously low point, abortion should be induced. This in most cases stops the vomiting immediately, but if too long postponed, the patient dies in spite of the operation.

2. Lindenheim made careful records of the temperature of syphilitic patients receiving mercury, and found transitory fever in 10% after the first administration of the drug. The temperature rose within twenty-four hours, reaching a maximum of 103°. The patients were all in the secondary stage. The febrile reaction is probably due to the absorption of endotoxins set free by the death of spirochetes.

3. Hoke and Mende investigated the Katzenstein method of testing the function of the heart. This consists in compressing both femoral arteries and noting the pulse rate and blood pressure before and after. It is claimed that with good cardiac function the pulse rate remains the same or falls, and the blood pressure rises, while with insufficient hearts the pulse rate rises and the pressure falls. The authors found these statements to be true in the main, but in some instances these were such discrepancies that they consider the method to be of little value. In one case of uncompensated heart disease, serious symptoms resulted from the compression.

4. Müller recommends warmly protargol salve to stimulate the healing of wounds of the skin, especially after burns. It should be used in the strength of 5 to 10%.

[W. T.]

ZEITSCHRIF FÜR KLINISCHE MEDIZIN. BD. 61, HFT. 1 and 2.

1. *SEILER, F. *The Nature of Diabetes Insipidus.*
2. *VON RITOOK, S. *Hypoplasia of the Arterial System.*
3. *STERN, A. *Cysticercus of the Fourth Ventricle.*
4. *JANOWSKI, W. *Dicrotism in Aortic Insufficiency.*
5. *NÜRNBERG, A. *Dicrotism in Aortic Insufficiency.*
6. BERGELL, P., and LABAUD, L. *Experimental Test of Isotonic Mineral Water.*
7. *KLEMPERER, G., and UMBER, H. *Diabetic Lipemia.*
8. ARONSOHN, E. *Clinical Observations on Increased Metabolism.*

1. Seiler has studied two cases of diabetes insipidus with much care. These he reports along with two other cases less completely studied. In order to determine whether in diabetes insipidus there was any disturbance of renal activity, he compared the urinary output with the intake of fluid and the effect on the urinary secretion of a large amount of fluid taken at one time. These he compared with the urinary excretion of normal individuals under like conditions. That there was no disturbance of the absorption of water he determined by comparing the effects of fluid drinks on the hemoglobin of the blood in normal people and in diabetes insipidus. Then he studied the total output in twenty-four hours of various solid constituents under a constant diet, the effect of large ingestions of proteid, carbohydrate or salts on the total solids; also the secretion of methylene blue in comparison with a normal individual. Finally, he tested the action of caffein, agurin and theocin on the urinary excretion in diabetes insipidus. As a result of these experiments he concludes that in diabetes insipidus there is an abnormality in renal function, which consists in an inability to excrete a urine of a normal concentration. Only a urine of reduced concentration can be excreted. A sufficient excretion of solids then takes place only when there is an increased output of fluid. This demands an increased ingestion of fluid, and when the fluid intake is insufficient there is a retention of urinary products, evident objectively in an increased osmotic tension of the blood, (estimated by determinations of the freezing point,) and subjectively in symptoms similar to those of beginning uremia. This explains the increased thirst and the polyuria of the disease. Seiler suggests that possibly the polyuria of chronic interstitial nephritis may be of similar nature. This disturbance in function in diabetes insipidus the author does not believe due to a decreased reabsorption of water in the convoluted tubules, as suggested by some, but it is of a more complex nature and in part due to a disturbed nervous mechanism. Caffein, agurin and theocin he found practically without influence therapeutically. It seems best to determine the optimum fluid intake and to give daily that amount of fluid. A departure in either direction from this generally leads to unpleasant symptoms.

2. Arterial hypoplasia occurs most commonly in the young and is usually accompanied by anemia and frequently by defective development of other organs, as a small heart or hypoplastic genitalia. These individuals tire abnormally easily without any demonstrable cardiac lesion. Subnormal temperature and cold extremities are common. Palpitation and left-sided hypertrophy of the heart is often found. Cardiac insufficiency after slight cause and decreased resistance to disease are features. It is rare to have all these symptoms but enough are usually present to justify a presumptive diagnosis. The condition is either congenital or the result of a defective arterial growth after birth. An aorta less than 55 mm. in circumference in an adult is to be considered as hypoplastic. V. Ritook has been able to collect 56 cases of arterial hypoplasia from the literature and reports 17 cases of his own. From these he deduces the above conclusions.

3. Stern reports 4 cases of cysticercus of the fourth ventricle and tabulates 68 from the literature. As a result of this analysis, he states that symptoms may be divided into (*a*) symptoms of general cerebral pressure, (*b*) symptoms of disease in the posterior fossa, (*c*) rare but certain localizing symptoms of disease of the medulla (diabetes, respiratory disturbance and paralysis of regional nerves especially the abducens.) Local symptoms are usually obscured by the general ones. Characteristic is the striking alternation between severe general symptoms and periods of no symptoms, so that a functional disturbance is simulated. The Bruns symptom (dizziness on suddenly turning the head) is especially characteristic of cysticercus of the fourth ventricle. Sudden death from respiratory failure is common. These last three in connection with any localizing symptoms form the basis of a possible diagnosis. A very extensive bibliography is given at the end.

4 and 5. In an earlier number of this same journal (Bd. 59, hft. 5, 6, S. 532), Goldschieder, as the result of the study of three cases, concluded that the appearance of a distinctly dicrotic pulse in aortic insufficiency was evidence of the development also of mitral insufficiency. In Goldscheider's cases with the appearance of evidence of mitral insufficiency, fever had developed. Janowski questions whether the fever or the mitral insufficiency is the cause of the dicrotism. Mitral insufficiency alone he shows is not a cause. Pulse tracings from two cases of aortic and mitral insufficiency give no evidence of dicrotism. On the other hand, cases of aortic insufficiency show a dicrotic pulse during periods of fever which disappears when the temperature returns to normal. So Janowski concludes that in aortic insufficiency the same causes produce dicrotism as do without such valvular lesion. These are conditions which lower vascular tension, as fever, Basedow's disease, amyl nitrite. A dicrotic pulse is no evidence of a coincident mitral insufficiency. On the other hand, Nürnberg, by means of sphygmograms from cases which do not show a palpable dicrotism, supports the views of Goldscheider. [Of the two papers that of Janowski is the more convincing.]

7. Lipemia is not characteristic of severe diabetes and diabetic coma, as it was not present in some of the author's severe cases. The increased lipoid in the blood is only in part true fat, in part it is lecithin and cholesterin. The latter are in the blood in larger amounts than in the fat depots of the body, so the lipemia is not due merely to increased fat transport. It rather suggests an increased cell destruction and the freeing of lipoid substances from union with proteid. [This paper gives some evidence for the intracellular origin of part of the fat of fatty degeneration. H. A. C.]

Miscellany.

THE POPULATION OF FRANCE.

In France, unlike England, the population has been counted regularly every five years since the beginning of last century, the date of the last census being just over a year ago. No full report relating to it has yet appeared, but the Minister of the Interior has published a summary of its contents so far as gross population is concerned. From the figures given it would appear that the population of France on March 4, 1906, numbered 39,252,267, which represents an increase of 290,322 in five years. Such increase is considerably less than in the previous five years, when it was little less than half a million; on the other hand, if the ten years ending March, 1906, be compared with the ten years ending March, 1901, the rate of increase is in favor of the later decennial period. A further point from which can be drawn some consolation for those who view the comparative depopulation of France with alarm is that the increase, such as it is, is distributed over a larger number of departments than in earlier periods, or, in other words, the population seems to be stationary or decreasing in fewer parts of France than heretofore. A further item in the summary relates to the number of foreigners resident in France. They were counted for the first time in 1886, and then numbered 1,115,214; they now only just exceed a million. It is believed that this diminution is the outcome of a law passed some seventeen years ago with reference to foreign residents, which has the effect under certain circumstances of converting resident foreigners into French subjects automatically and irrespective of their wishes. A certain amount of information is also supplied as to changes in the distribution of the population. Some large towns have added to their population although that of the departments in which they are situated has decreased, but the figures as a whole are considered to indicate at least some slackening in the flow from the country districts to large centres. In considering these figures it is worth while to remember that the British census of 1901 revealed a population of 41,976,827; this was equal to an increase in ten years of not far short of 4,000,000 against, roughly speaking, a quarter of a million in five years in France.— *British Medical Journal.*

Correspondence.

LETTER FROM SAN FRANCISCO.

The Present Hygienic and Professional Situation.

San Francisco, Cal., April 13, 1907.

Mr. Editor: In accordance with your suggestion and as the close of the year following our great disaster approaches, it may be interesting to the medical profession to know the present status of hygienic and professional matters in San Francisco.

Following the fire, there was great apprehension lest an epidemic should befall us, not only here but in the neighboring towns. This might reasonably be expected as a result of the crowded conditions brought about by the necessity of housing three hundred thousand homeless people; and further because the major part of the water supply of San Francisco was cut off for many weeks, owing to serious breaks in the water-mains. This impelled many people to use old wells, and in spite of every effort made to have water boiled, the carelessness in this particular caused serious trouble. In the summer and fall there occurred more than a thousand cases of typhoid. When one considers that one hundred cases a year is about the average for San Francisco, and that a vast majority of these are brought in from neighboring counties, such an epidemic as ours seemed to us a serious matter. The situation was carefully studied by a committee from the County Medical Society, and by the local board of health. Considerable importance was attached at first to the possibility of the disease being fly-borne. Serious breaks in the sewers might easily have occurred without being noticed, and it was some weeks after the disaster before the latrines in the camps were properly screened. The possibility of flies carrying the disease is apparent. It is a point worthy of attention that there is no proof that the main water supply of the city was in any way contaminated. The epidemic reached its height in October and November, and within two months of that time had completely died out. The prompt isolation of cases of smallpox, scarlet fever, measles and whooping-cough in an improvised hospital for contagious diseases, ably managed in its early days by Dr. MacKenzie of Portland, Ore., prevented any trouble whatever on this score, and the city has been remarkably free from contagious disease during the year. The dry season has about begun, and with it will come the summer winds, which are bound to make the burnt district a very dusty place. Fortunately, these winds are west winds, and as the burnt district occupies the eastern part of the city, a greater part of it will not be affected.

The transportation problem has not by any means been settled, and it is a singular fact that there is an immense increase in the complaint of foot troubles, which suggests that many people are walking who were not accustomed to this form of exercise.

In spite of the fact that nine hospitals were burned, and several of those remaining badly damaged, there has been no lack of hospital accommodations, due partly to the extremely healthy condition of the city, and partly to the rapidity with which several of the large private residences were converted into hospitals. The generous support given by the San Francisco Relief Committee to the families of working-people in which there was sickness, has done an immense deal to prevent additional burdens being put upon a large number of people who suffered in the fire. The Relief Committee has paid the hospital expenses of an average of two hundred and twenty-five people a day up to April 1, from the time of the fire.

About $40,000 was received by the Physicians' Relief Committee, and a very large supply of new clothing and shoes, besides a number of medical books and surgical instruments. From the money and clothing three hundred families of doctors were helped, at an expense of $30,000. The balance of the fund, after providing for a few who on account of age and infirmity must be cared for the rest of their lives, will probably be turned over as a permanent relief fund to the County Medical Society. The sets of books, particularly files of magazines, were given to the library of the County Medical Society. The rest of the books and the instruments were distributed among doctors who needed them. Although physicians as a class suffered very heavily, more than a thousand out of the four thousand in town losing their homes, offices or both, they have re-established themselves remarkably well. The prosperity of the working classes is partly responsible for this. I think it is a fair statement to make, however, that no single class of people suffered more, or found it harder to re-establish themselves than physicians. It is certainly harder to do one's work, and people in trouble through sickness seem to expect the doctor to charge less than before, while expenses of living are certainly greatly increased.

Very truly yours,

Philip King Brown, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 20, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,557	463	Quincy	4	2
Chicago	617	192	Waltham	9	1
Philadelphia	—	—	Pittsfield	11	—
St. Louis	—	—	Gloucester	6	2
Baltimore	203	44	Brookline	4	—
Cleveland	—	—	North Adams	9	2
Buffalo	—	—	Chicopee	7	4
Pittsburg	—	—	Northampton	7	3
Cincinnati	—	—	Medford	6	—
Milwaukee	—	—	Beverly	3	—
Washington	—	—	Leominster	1	—
Providence	74	33	Hyde Park	8	3
Boston	216	40	Melrose	5	2
Worcester	53	13	Newburyport	1	—
Fall River	29	13	Woburn	4	—
Cambridge	33	5	Marlboro	3	2
Lowell	28	9	Westfield	3	—
Lynn	25	4	Peabody	—	—
New Bedford	25	4	Revere	5	1
Springfield	20	3	Attleboro	6	1
Lawrence	22	4	Clinton	3	2
Somerville	15	1	Adams	3	2
Holyoke	22	9	Gardner	—	—
Brockton	7	—	Milford	—	—
Malden	17	5	Watertown	0	—
Chelsea	12	3	Plymouth	—	—
Salem	14	5	Weymouth	5	0
Newton	14	2	Framingham	2	1
Haverhill	13	3	Southbridge	4	1
Fitchburg	8	1	Wakefield	—	—
Everett	12	2	Webster	—	—
Taunton	11	4			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED APRIL 24, 1907.

CARRINGTON, P. M., surgeon. Detailed to represent the Service at the meetings of the National Association for the Study and Prevention of Tuberculosis, and the twenty-fourth annual meeting of the American Climatological Association, to be held in Washington, D. C., May 6–9, 1907. April 23, 1907.

LAVINDER, C. H., passed assistant surgeon. Granted leave of absence for one month from April 24, 1907. April 23, 1907.

HOBDY, W. C., passed assistant surgeon. Directed to proceed to San Francisco, Cal., for special temporary duty, upon completion of which to rejoin station. April 18, 1907.

BOGGESS, J. S., passed assistant surgeon. Directed to proceed from St. John, N. B., to Quebec, Can., for duty in connection with the examination of alien immigrants. April 23, 1907.

BAILEY, C. W., acting assistant surgeon. Granted leave of absence for one day, April 23, 1907. April 23, 1907.

BULLARD, J. T., acting assistant surgeon. Granted leave of absence for nine days from March 23, 1907, on account of sickness. April 17, 1907.

FOSTER, S. B., acting assistant surgeon. Granted six days' leave of absence from April 19, 1907. April 18, 1907.

KEATLEY, H. W., acting assistant surgeon. Granted leave of absence for three days from April 16, 1907, under paragraph 210 of the Regulations.

ONUF, B., acting assistant surgeon. Granted leave of absence for two days from April 10, 1907, on account of sickness. April 20, 1907.

SCHWARTZ, LOUIS, acting assistant surgeon. Granted leave of absence for four days from April 7, 1907, on account of sickness. April 17, 1907.

SCHUG, F. J., acting assistant surgeon. Granted leave of absence for fifteen days from May 3, 1907. April 22, 1907.

FISH, ERWIN L., pharmacist. Directed to proceed to Evansville, Ind., reporting to the medical officer in command for duty and assignment to quarters. April 22, 1907.

APPOINTMENT.

MR. ERWIN L. FISH appointed pharmacist of the third class. April 20, 1907.

BOARD CONVENED.

Board of medical officers convened to meet at Galveston, Tex., April 22, 1907, for the physical examination of an officer of the revenue-cutter service. Detail for the board: Passed Assistant Surgeon G. M. Corput, chairman; Acting Assistant Surgeon William H. Gammon, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING APRIL 27, 1907.

F. A. ASSERSON, passed assistant surgeon. Detached from the "Columbia" when placed out of commission, and ordered to the "Kansas."

J. T. KENNEDY, passed assistant surgeon. Detached from the "Hancock" and ordered to attend course of instruction at the Naval Medical School, Washington, D. C.

R. C. RANSDELL, assistant surgeon. Detached from the "Maine" and ordered to the "Connecticut."

H. A. MAY, assistant surgeon. Ordered to the Navy Yard, Norfolk, Va.

M. C. BAKER, acting assistant surgeon. Detached from the Navy Yard, Norfolk, Va., and ordered to duty at the Naval Hospital at that place.

J. G. FIELD, surgeon. Detached from duty with marine recruiting party at Dallas, Tex., and ordered to duty with marine recruiting party at Houston, Tex., May 12.

E. L. JONES, assistant surgeon. Orders of March 29 modified; ordered to the "Milwaukee."

SOCIETY NOTICES.

AMERICAN MEDICAL EDITORS' ASSOCIATION. — The thirty-eighth annual meeting of this association will be held at Atlantic City on Saturday, June 1, and Monday, June 3, with headquarters at the Marlborough-Blenheim Hotel. The president's address will be on "The Future of Medical Journalism," by Jas. Evelyn Pilcher, M.D., Ph.D., LL.D. The annual editors' banquet will be held at the Marlborough-Blenheim Hotel on Monday evening, June 3.

J. MACDONALD, JR., M.D., *Secretary and Treasurer.*

AMERICAN NEUROLOGICAL ASSOCIATION. — The annual meeting of the American Neurological Association will be held in Washington, D. C., May 7, 8 and 9.

GRAEME M. HAMMOND, M.D., *Secretary.*

RECENT DEATHS.

DR. CHARLES D. MATISON was found dead in bed on April 22, in his home at Minetto, Oswego County, N. Y., death having resulted from an overdose of hydrated chloral, taken to induce sleep. He was a graduate of Johns Hopkins University, and thirty-five years of age.

DR. ANDREW M. MILLS, of Newark, N. J., county physician of Essex County, committed suicide on April 21. He had been ill for two months and of late had shown symptoms of insanity. He was thirty-six years old, and a son of the late Dr. Andrew M. Mills of Newark. He was graduated from the medical department of New York University in 1892, and at the time of his death was visiting physician to St. Michael's Hospital, Newark.

DR. JONATHAN F. LEAMING, of Cape May Court-house, N. J., died on April 25 from burns received in a fire which damaged his residence three days previously. His daughter, Miss Helen F. Leaming, in endeavoring to save her father from the flames, was also fatally burned. Dr. Leaming, who was eighty-five years of age, was well known throughout the State of New Jersey. He served in the State Senate from 1862 to 1865, and again from 1877 to 1880, and in the intervening period served a term in the Assembly. He leaves one son, Edmund B. Leaming, who is at present vice chancellor of New Jersey.

DR. IRENE DU PONT YOUNG, of Bordentown, N. J., one of the oldest and best known physicians in the state, died on April 26. His mother belonged to the Du Pont family of Delaware, and he was born at Rockland, on the Brandywine, near which the Du Pont powder works are situated. He was graduated from the medical department of the University of Pennsylvania in 1848. He had been an officer of the New Jersey Medical Society and the Burlington County Medical Society, and at the time of his death was still consulting surgeon to the Mercer Hospital at Trenton.

BOOKS AND PAMPHLETS RECEIVED.

Physical Therapeutics at the Massachusetts General Hospital. Opening of the Hydro-Therapeutic Department. By Max Böhm, M.D.

Metabolism and Practical Medicine. By Carl von Noorden. Anglo-American Issue under the editorship of I. Walker Hall. Chicago: W. T. Keener & Co. 1907.

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Original Articles.

GASTRO-ENTERIC OBSTRUCTION IN EARLY INFANCY.*

GENERAL DIAGNOSIS AND TREATMENT, WITH A REPORT OF TWO CASES OF PYLORIC STENOSIS AND ONE OF VOLVULUS, SUCCESSFULLY TREATED BY LAPAROTOMY.

BY THOMAS MORGAN ROTCH, M.D.,
Professor of Pediatrics in Harvard University,
AND
FRED TOWSLEY MURPHY, M.D.,
Assistant Surgeon to the Infants' Hospital.

IN 1905 a paper [1] by Scudder and Quinby on stenosis of the pylorus in infancy, with an analysis of 115 cases, was read before this society. This paper was in its way classical and served a good purpose. It not only represented the very latest views of the subject up to that time; it not only covered the entire ground of pathology, symptomatology, prognosis and surgical treatment, but it did what was very necessary at that time, namely, it established the pyloric stenosis of infancy as an entity and as a definite and at times organic disease. This article, by its admirable system, its breadth, its statistical merit, its exact detail and its varied and accurate bibliography forced upon the not infrequently doubting minds of the profession at large that it is their manifest duty to accept this condition as a disease, to learn to recognize it during life and to acknowledge the propriety and necessity of surgical interference in cases where infantile laparotomy was by many considered unadvisable.

Something more, however, happened from the publication of this paper, for it acted as a double-edged sword. Apathy in regard to the subject was replaced by overenthusiasm, and vomiting babies were not only oversuspected, but in certain cases convicted, to their great detriment, of stenosis where no stenosis existed.

Bearing these facts in mind, we have thought that the time had come when we should enter upon a study of the various phases of the subject, both medical and surgical, which might aid the general practitioner to look upon the whole subject of the gastro-enteric disturbances of infancy from a more rational point of view, and thus to deal with his cases of persistent infantile vomiting more intelligently.

So far as we can ascertain by careful search no case of volvulus in the first year of life, provisionally diagnosticated during life and operated on with complete recovery, has appeared in the literature of the subject, so that we have one more class of cases the study of which will probably, as it certainly has in pyloric stenosis and infantile intussusception, reduce the mortality of intestinal obstruction.

What can we safely say we know in regard to gastro-enteric obstruction in infancy as a whole which is of sufficient value to aid us in a differential diagnosis of one of the special forms of infantile obstruction?

*Read before the Obstetrical Society of Boston, Feb. 26, 1907.
[1] Jour. Am. Med. Asso., May 27, 1905.

First, we should know that outside of various rare malformations, either of the gastro-enteric tract itself or of neighboring organs, notably the liver, the symptoms of obstruction arise almost invariably from four classes of cases:

(1) Stenosis of cardiac (very rare) or pyloric (comparatively common) orifice of the stomach or intestine (rare).
(2) Intussusception.
(3) Volvulus.
(4) Appendicitis.

Second, we should recognize that in infancy vomiting is exceedingly common, we might almost say a universal symptom of all diseases whether etiologically general infections, cerebrospinal conditions, the above-mentioned general malformations, functional or organic disturbances of the gastro-enteric tract, or as a symptom of the four cardiac diseased conditions just mentioned. Vomiting in early life, as comparatively distinguished from a later period, is, therefore, not primarily diagnostic of any especial disease, and, in this sense, not of obstruction. On the other hand it is present at some time in all forms of obstruction. Again, by far the most frequent cause of continued vomiting in the early weeks of life is indigestion, and in comparison with indigestion all obstructive cases are extremely rare. The character of the vomiting has a good deal of diagnostic value. For instance, a few attacks, as early prodromal symptoms in the acute exanthemata, especially scarlet fever, or slight initial vomiting without nausea, as in cerebral disease, or vomiting accompanied by nausea and following the ingestion of food, as in indigestion, or, again, the vomiting of obstruction without nausea, expulsive, and not dependent upon the quality of the food, but upon the quantity. It is to be noted that the latter two classes quite often simulate each other closely. Vomiting, therefore, is only partially diagnostic of obstructive cases. The form of vomiting which most closely simulates obstructive, is the so-called recurrent, or cyclic. In this class of cases the etiology is unknown, the disease seemingly being a neurosis. In these cases the vomiting is expulsive as it is in cerebral disease (notably tubercular meningitis) and in obstruction (notably pyloric stenosis). It differs, however, from both in being accompanied by extreme nausea, in this respect corresponding to the vomiting of indigestion, and differing from it by not depending upon either quality or the quantity of the food.

Again, it is extremely rare to meet with recurrent vomiting in the early weeks of life, which is the time for the obstructive vomiting of infancy.

Facts which are of great value in the differential diagnosis of stenosis, volvulus, intussusception and appendicitis (which includes peritonitis) are the stages of development and the ages. Pyloric stenosis occurs in the early days or weeks of life, while volvulus is very variable as to its time. On the contrary, appendicitis is practically unknown at an earlier age than two years, and the youngest case of which we have

record was six weeks; therefore appendicitis need not be considered as a probability in very early life. In like manner intussusception under the age of three months is extremely rare. The fact is, therefore, that whether the attack of gastro-enteric disturbance occurs in the early days, or in the first three or four weeks of life, it presents strong evidence that we are not dealing with appendicitis, peritonitis or intussusception, and our diagnosis should be especially directed, first, to indigestion, and if that can be eliminated, next to gastro-enteric stenosis and volvulus. The classical symptoms which are usually stated to be required for the diagnosis of obstruction are, vomiting, disappearance or diminution of feces by the rectum, rectal hemorrhage, dilated stomach, rapidly progressing emaciation, gastric peristalsis and a palpable tumor. As indigestion is the cause of vomiting in the vast majority of cases, it should be known that all the above symptoms, with the exception of hemorrhage and a palpable tumor, may occur, and not infrequently, from indigestion. Vomiting in young infants in quite a number of cases where there is extreme gastric irritability may be expulsive to such a degree that we are often in doubt as to whether to call it expulsive or not. Owing to this fact we are at times deprived of an otherwise most valuable factor in our diagnosis of organic disease. Extreme constipation in merely functional diseases is very common. A dilated stomach and rapid emaciation often occur in these cases, and where emaciation is extreme and the stomach dilated gastric peristalsis is likely to be quite evident. Again, we have seen a palpable mesenteric gland in the region of the pyloric end of the stomach simulate the pyloric tumor of stenosis, and we have known a congenital stenosis of the duodenum to simulate stenosis of the pylorus closely in its symptoms. Again, in our case of volvulus, the hemorrhage from the rectum was accompanied by petechiæ and ecchymosis of the skin, signifying hemorrhagic disease of the new born, and thus masking the intestinal obstruction which, in all probability was at least partially present from the very first. Again, in quite a large number of cases of pyloric stenosis the pyloric tumor cannot be detected under ether.

Having made a provisional eliminative diagnosis of pyloric stenosis, we must keep certain general facts in mind:

(1) We know that there may be an organic stenosis.

(2) That this stenosis is probably greater during life than at the post-mortem.

(3) The actual stenosis is, and probably almost always is, increased by spasm from various causes, notably from excessive acidity of the gastric contents.

(4) The stenosis may be complete or partial, and in the latter case, of varying degree.

(5) There may be no organic stenosis at all and yet a complete or partial stenosis from simple spasm.

(6) A partial organic stenosis may allow the infant to live for years with remission of symptoms, but usually with symptoms of chronic and gastro-enteric indigestion, producing wasting and general ill health.

In reviewing these six conditions we at once see that it is the fifth class, or that of spasm without organic change, which presents the greatest difficulty as to diagnosis and treatment, for in this case the infant may recover entirely. It is in this class of cases (to which we shall refer later when speaking of treatment) that all skill and knowledge that we possess, all modern medical treatment, together with long and trained experience in feeding, and usually good judgment, are imperative.

It is no wonder under these circumstances that the general practitioner is very uncertain as to his diagnosis and hesitates to advise operation.

Regarding the etiology of hypertrophic pyloric stenosis there has been much speculation. Several theories have been formulated, but facts clinical or experimental do not substantiate any one of them. If the stomach of a dog is pinched, violent contractions in most cases are produced, and the transient spasm at the pylorus looks and feels to a remarkable degree like the typical tumor of pyloric stenosis in infants. Gastric irritation might cause such spasms as Pfaundler[2] believes, but there is no evidence clinically either that the food in all these cases is irritating, or that the stomach is irritated. The majority of the careful analyses of the stomach contents have shown an excess of HCl, but this is not a constant finding. From experimental evidence, as shown by Cannon, an excess of HCl, at least up to a moderate hyperacidity, should cause the pylorus to relax. Moreover, the spasms of the pylorus and this hypertrophy are pathologically two distinct conditions. The former shows no evidence of obstruction post-mortem. The latter shows without exception at autopsy and in the operated cases an hypertrophy of the structures at the pylorus, causing a narrowing of the lumen. This hypertrophy is as a rule confined to the fibers of the circular muscle coat. It is the main factor in the obstruction. The folds of mucous membrane which are often mentioned are secondary, as is the hypertrophy of the stomach walls. The minute size of the intestine is proportionate to the amount of atrophy or of non-development from disuse.

The family history in these cases is not of importance. Ordinarily the mother has been found to be healthy. The condition is found in the first child as well as in children where several other infants have developed normally on the mother's milk. Neither sex is immune. Breast-fed as well as bottle-fed infants are subject to this obstruction.

The symptoms may begin at birth or at any time during the first few weeks of life. The majority of cases show the first symptoms in the third week. Frank first attacks after the second month are very rare.

Wide variations in the symptoms may be found.

[2] Virch. Arch., clxxxi, No. 1.

These variations are explained by considering the modifying influences which have become engrafted upon the primary lesion. Vomiting is, on the whole, the leading symptom. It is without exception the one which first attracts attention, for the vomiting is secondary to the obstruction at the pylorus, and it begins at birth, or weeks later, whenever that obstruction becomes sufficiently complete to interfere with the onward passage of the food.

Consider first the typical case, with complete or practically complete occlusion of the lumen of the pylorus. Food is poured into a cavity of limited capacity. From this reservoir there is no outlet, so periodically the content is expelled via the inlet. The mechanical process is carried out in every detail just as would be expected. If the feedings are of large amount the reservoir is rapidly overfilled and the vomiting is frequent; if small in amount, the reverse is true. The amount of vomitus is variable, depending upon the size and tolerance of the stomach. It is practically a return of the ingested material, for with a complete obstruction the intestinal content is dammed off. This vomiting in the typical cases is not the simple running over of a well-filled tolerant stomach. It is expulsive in character, for the reservoir is contracted forcibly in its effort to drive the food along its normal channel. The vomitus may be thrown across the crib to a distance of several feet, not spit up or allowed to run down the side of the face. If from gastric irritation there is caused a prolonged spasmodic contraction of the pylorus, and the pyloric sphincter is stronger than the cardia, there is no reason why the resulting expulsion of food should not simulate perfectly the expulsion with the true hypertrophic stenosis. But for this vomiting some dietary cause may be found. It is amenable to treatment to some degree. Also this vomiting in the uncomplicated cases of obstruction is not associated with nausea, and after the stomach has emptied itself the infant is comfortable and soon is eager to receive more food. Neither is it associated with symptoms of gastric or enteric irritation, that is, the point to be emphasized is that the vomiting is mechanical in its manifestation. Change the mechanical condition and the character of the vomiting changes. If there is an hypertrophy with an associated spasm of the pylorus, the amount and frequency of the vomiting may vary in proportion to the extent of this spasm. There may be periods of prolonged relief. The vomitus may contain bile. Engraft an acute process upon the stenosis and there will follow changes in accord with the nature and severity of this process. There will be with associated gastric irritation the symptoms of this condition.

The obstruction of the pylorus causes abnormally vigorous contractions of the stomach, just as an obstruction of the intestinal canal causes vigorous peristalsis of the intestine above the obstructed point; but as in the intestine these contractions, the spasms of the muscular coats, are subject to wide variations depending upon the nature of the obstruction, be it acute or chronic, and upon the time of observation. An hypertrophied intestine secondary to the slowly advancing stenosis of the new growth may not contract so as to produce visible peristalsis, neither does an exhausted intestine after an acute obstruction. So with the stomach the presence or absence of visible peristalsis is dependent upon the combination of conditions. Also peristalsis which might be evident with the thin abdominal wall might be equally vigorous and yet not be seen with the thick abdominal wall. Therefore this sign must be considered as only of secondary importance, as something which substantiated the diagnosis if associated with other symptoms. Visible peristalsis has been observed most frequently in the cases which were most carefully watched during the early stages of the disease. Gastric peristalsis was most plainly evident in our case of volvulus, but it was doubtful and, so far as we could determine, practically absent in the cases of pyloric stenosis.

The pyloric tumor, another of the mechanical signs, if present, is diagnostic. If it is not palpated the negative evidence is not conclusive, because the tumor may be obscured by a large liver, by a thick or rigid abdominal wall or from the fact that only in contraction is it palpable. It may be overlooked or confused with something else from the unfamiliarity of the observer with the exact feeling of the tumor when present. This has undoubtedly occurred in the past. In the future the more careful and intelligent examination of these cases will show, in our opinion, a larger percentage in which the pyloric tumor may be felt. The size of the tumor, as is illustrated by our second case, may not be indicative of the degree of obstruction. Here the tumor was easily and constantly palpable, and as shown by operation, it was of more than average size, yet the lumen was not completely obstructed.

The size of the stomach depends upon the amount of pressure exerted by the food, the tolerance to this irritation and the strength of the stomach walls. Dilation is the rule, the lower border not infrequently coming below the umbilicus, as was the case in these two infants, but it may be of normal size, or smaller than normal. The distinct, sharply outlined fullness in the epigastrium, which may be seen in these cases after the ingestion of a small amount of food, would seem to us to be of greater importance as a diagnostic sign than the actual size of the organ.

Another diagnostic sign which has not yet received its proper emphasis is the character of the dejections. Constipation is the rule, diarrhea the exception. The fecal discharges grow small in amount, proportionate to the degree of obstruction, and the character changes markedly. They become meconium-like, dark and pasty. In a case reported by Dr. Morse[3] and one of the writers this was the first and only typical evidence until the very last stages, when a pyloric tumor became palpable.

The loss of weight is fairly well represented by

[3] Bost. Med. and Surg. Jour., Nov. 2, 1905.

our two cases. It is of course dependent upon the amount of food which passes the pylorus plus the effect of any error in metabolism, and the slight modifying influence of the resistance of the individual.

The condition of a typical tetany with respiratory spasms seen in the second case is most unusual. That it was secondary to the obstruction of the pylorus seems probable, because it came on gradually as the obstruction had increased, and disappeared within forty-eight hours after that obstruction was relieved by a side-tracking of the stomach contents. Rolleston and Crofton-Atkins [4] report convulsions in a case of pyloric stenosis which died in the eighth week of life, the symptoms beginning in the second week; but the descriptions do not warrant a diagnosis of true tetany.

The rare cases of congenital atresia of the pylorus, such as that reported by Little and Helmholz [5] can never be differentiated by clinical symptoms. An examination of the meconium will, however, exclude practically all the cases of congenital atresia of the gastro-intestinal tract, for they occur before the fifth month. Hence there is, as shown by Walz,[6] absence of the lanugo hairs, and this would not be so in cases of hypertrophic stenosis even though the symptoms began at birth.

In differentiating between the obstruction of an hypertrophic stenosis of the pylorus and an obstruction in the intestine, it should be remembered that in pyloric stenosis it is rare to find bile in the vomitus, except in small amount and depending upon whether the stenosis is more or less complete, while we expect in accordance with our at present limited knowledge of volvulus or other obstruction of the intestine to find bile in considerable quantity. In this latter condition in both cases the character of the vomiting is expulsive.

If the case has been under personal supervision from the first, and has been fed either by the breast or with a properly modified milk from the first day, the problem of differential diagnosis will be much simplified and a diagnosis reached more rapidly. If, however, the stomach from birth has been maltreated with various unsuitable mixtures or bad breast milk, the difficulty of the problem is very much increased.

Washing out the stomach and the chemical examination of the gastric contents, especially the latter, has, in comparison with later periods of life, proved at present to be of very little aid for diagnosis and treatment in the early weeks of life.

It is possible that in the future the Röntgen ray will aid us in determining the absence or presence of a pyloric stenosis. Powdered bismuth can be introduced into the stomach and the shadow from the bismuth, which is impervious to the ray, will indicate the condition, as Cannon [7] has so beautifully demonstrated in his experiments on animals.

[4] Brit. Med. Jour., Dec. 22, 1900.
[5] Bull. Johns Hopkins Hosp. July, 1905.
[6] Münch. Med. Wochenschr., liii, S. 1011-1013.
[7] Jour. Am. Med. Asso., Jan. 7, 1905.

Taking all these facts into consideration, it is evidently of vital importance to eliminate gastro-enteric indigestion. Once having done this, however obscure the symptoms, however impossible to differentiate the different causes of the obstruction, we have arrived at a stage in the diagnosis where we can say: This is a case of obstruction and the indication is for laparotomy, no matter what the cause of the obstruction. Again, we can go further and say, first, if the case is three or four weeks of age, that we do not expect to find appendicitis, peritonitis or intussusception. Second, that there may be a malformation or a stenosis of the intestine, but that the chances are that there will be a volvulus of a pyloric stenosis, and, again, the chances are that the condition will turn out to be a pyloric stenosis. There may be a mistaken diagnosis as to the special cause of the obstruction, but there is no mistake as to the advisability of operating, provided that we are correct in eliminating indigestion. Here, of course, we can but say that if an infant is evidently dying from the exhaustion following extreme vomiting we have at least given it a chance by subjecting it to an exploratory laparotomy which, if properly performed, does not by any means imply that the child will die. On the contrary, it will, by clearing the diagnosis, encourage us to push still farther our medical treatment for functional disturbance.

The treatment of the suspected case of pyloric stenosis must be exact and intelligent. The stomach should at once be washed out and then allowed to rest, the nourishment being supplied by nutritive enemata of one half to one ounce of peptonized milk with brandy — 10 minims every four hours. In the meantime, if the food has been breast milk, an analysis of the milk should be made to ascertain whether it is of suitable strength. We should not, however, feel too much encouraged if the vomiting ceases after the lavage, as in either a spasmodic or organic stenosis it may be merely the removal of the food which is the cause of the gastric irritation and the resulting vomiting which has produced the seemingly favorable result. This cessation of vomiting, indeed, aids us in making the differential diagnosis, for if after twenty-four hours' rest a good breast milk or a carefully modified milk of 1 fat, 5 sugar, .25 whey proteids, .25 caseinogen and 10% alkalinity is given and then as soon as the stomach is full expulsively vomited, we strongly suspect some mechanical obstruction of the gastro-enteric tract. We should not, however, at once admit the diagnosis, but should in two hours try small quantities of whey. If this is also vomited, we should as a rule not delay so far as simple indigestion is concerned, for now we should recognize the condition of obstruction whether from functional or organic causes, or possibly arising from spasm. The indication is now for alkalies and doses of bicarbonate of soda or lime water sufficient to make the milk strongly alkaline to be administered, in the case of breast milk, by means of a dropper at the time of nursing. If any of these procedures are followed by improve-

ment of the general condition with lessening of the vomiting we should persevere in the same treatment, as the case may be simply one of functional spasm. If, however, no improvement in the general condition follows and the infant is rapidly losing in weight — perhaps half a pound a day — we should postpone operative treatment no longer, as forty-eight hours have now elapsed, and every hour of delay becomes of the greatest importance. Of course this is but a rough outline of the preliminary medical treatment for differential diagnosis. There are any number of phases of the disease and changes of the actual details of the treatment arising in the individual case, and calling for expert knowledge, experience and judgment, but the general treatment is as we have outlined. We would, however, give warning that the administration of drugs other than as just specified is not only unsafe, but from the danger of their masking the diagnosis, decidedly contraindicated.

If we have determined that an uncontrollable functional spasm or a more or less complete hypertrophy of the pylorus are present, or that a possible malformation or volvulus may be present, we should recognize that benefit — excepting temporary, and in that sense illusive and dangerous — is not for a moment to be expected from medical treatment, and that laparotomy, to reveal the diagnosis and possibly to save the life of the infant, is absolutely imperative.

After the operation there is again great need for the most exact and skillful medical supervision of the feeding of the case; at least so it has seemed to surgeons who have worked hand in hand with medical experts in infantile feeding. We would especially emphasize the fact that both before and after the operation where good breast milk cannot be obtained, for if it can be obtained it can be employed without mechanical risk, the milk should if possible be modified with the precision which can only be only supplied at a good milk laboratory. In none of the diseased conditions of early infancy is the necessity for exact percentage feeding more absolutely indicated than in the intestinal obstructions of early life. To leave the required delicate manipulation of the food to a nurse, whether she be trained or not, is, in our opinion, an opinion now shared by many of our colleagues, very unwise.

The great temptation and the great danger is to feed these infants too soon after the operation. They are hungry and they cry for food. Knowing that the obstruction has been mechanically relieved, the tendency is to assume that the stomach and intestine will immediately take up their functions. It has been proven experimentally by Cannon and Murphy [8] that after very slight trauma the stomach and intestine do not take up the normal movements of peristalsis for at least several hours. Therefore, even though the anastomosis is patent, the food accumulates in the already distended stomach, and vomiting begins. When this vomiting has once started it apparently may continue though there is no mechanical obstruction or peritoneal infection. Lavage of the stomach may control vomiting of this character, and should always be tried. It is much safer, therefore, not to attempt any feeding by the mouth for at least twenty-four hours after the operation. During this time enemata of peptonized milk, three to four drams in amount, should be given every three hours, with brandy 10 minims. If necessary, infusion of normal saline solution should also be given subpectorally. If the general condition requires it, strychnia should also be used. If at the end of twenty-four hours there has been no vomiting, sterile water may be given, beginning with a few drops and continuing in dram doses every half hour, and the enemata continued. If this sterile water is well borne, beginning on the third day whey should be started in dram doses, and gradually increased in amount. It is well to give the sterile water in place of the whey every third or fourth feeding in order that any residue may be washed out of the stomach. When it has been possible to increase the whey up to an ounce every hour, the enemata may be omitted and a weak milk modification, such as a 1 fat, 5 sugar, .25 whey proteids, .25 caseinogen, alternated with, or substituted for, the whey. Gradually the strength of the modified milk should be increased, the fat and sugar being run up rapidly and the proteids very slowly. The amount of the feeding had best be less than that given to a normal child of the same age, since these infants have been starved, have dilated stomachs and therefore are eager for food. Special judgment is here needed to determine how long the infant should be allowed to cry, seemingly from hunger, and thus become exhausted, or to run the risk of prolonging the dilatation by continual overfilling of the stomach.

The diagram on the following page illustrates the meaning of what has just been said.

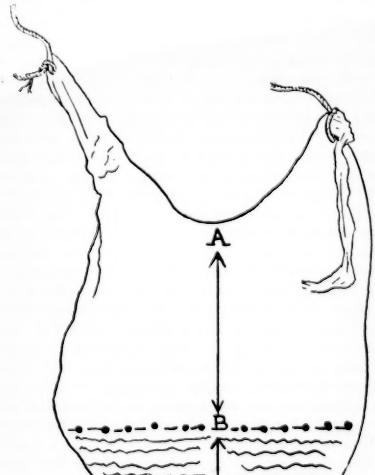
The stomach is shown dilated. The dotted line shows the normal size to which the stomach should recover when the dilation has disappeared, as under treatment it undoubtedly does. The proper amount of food to be given in this case is that which would fill the normal stomach, that is from B to C; but this amount in the dilated stomach will fill it at the most dependent part and only from B to C. This leaves the space A to B empty. The infant cries under these circumstances not from hunger but from emptiness, and if we give more food and fill up the space from A to B the empty feeling disappears and the infant stops crying. But when this takes place we continue to prolong the condition of dilation, and so long as this continues the infant cannot have its digestive function sufficiently perfect to insure its nutrition, and the long line of consecutive symptoms, ending in chronic gastro-enteric indigestion, rhachitis and infantile atrophy, may ensue.

The after-treatment of these cases should, therefore, be to not only adapt the food to the infant's disturbed digestion, but also to treat the gastric dilation by regulating the amount of the food.

[8] Ann. of Surg., April, 1906.

As a last word regarding pyloric stenosis, we wish to emphasize the fact that to look for it is to discover it, by reminding you that in this community about Boston there have been eleven cases operated upon by various men in the past four years. Prior to the operation of Dr. John C. Munro, in 1904, no surgical relief had been offered in these cases. Surely the years preceding 1904 cannot have been entirely without cases of pyloric stenosis in infants in this region.

Volvulus is not a common condition in infants. Surgical and autopsy statistics agree that it is a disease most usually found at or beyond forty years of age. Fifty per cent of all the cases are in the sigmoid flexure.



In the cases occurring in adults chronic constipation and adhesions secondary to some previous inflammatory process are important factors in the etiology, though a congenitally long mesentery and a short attachment is usually the primary predisposing cause. In the cases occurring in infants, save for the possible influence of some congenital remnant as the vitelline duct, the etiology is reduced to its simplest terms — an abnormally long mesentery which makes the rotation easy, plus some force which starts this rotation and carries it to 270° or more.

Sometime in the second half of the intra-uterine life the cecum should descend from its position under the liver into the right iliac fossa, but not infrequently this descent is not complete, the cecum may retain its early embryological position, or the ascending colon may preserve its mesentery. If the embryological position of the cecum is retained, the mesentery of the small intestine must preserve its embryological attachment in the median line. Therefore the ideal conditions for a formation of a volvulus of the small intestine and cecum are present. If we consider that the small intestine at birth is approximately nine feet in length, and the large intestine eighteen inches, about one half of which is sigmoid flexure, it is remarkable that volvulus is not of more common occurrrence in infants. This evidence would seem to give added importance to the influence of factors other than the simple length of the mesentery in adult cases.

Pescatore [9] reports the autopsy findings in a nineteen-day old infant with a volvulus of the whole small intestine and the ascending colon, and reviews the findings of the similar case reports since those of Bendar in 1850. Every case showed some anomaly of the mesentery or the attachment of the intestines. He could not determine what had been the cause in these cases of the beginning of the rotation. The rotation of the bowel was usually from the right to the left.

Our case showed the typical congenital anomaly predisposing to this condition,— the median attachment of a long mesentery of the small intestine and the cecum high up under the liver. No influence, either external violence or unusually vigorous peristalsis during the intra-uterine life or after birth, could be found as the immediate cause of the starting of the torsion.

Volvulus in infants, as in adults, must show a varied symptomatology because the lesion is subject to so many variations both in the degree of the torsion and in the location of the obstruction. If the degree of torsion varies so that at one time there is obstruction and at another time a patent lumen, the resulting symptoms will likewise vary.

Practically the diagnosis is one of obstruction. Differentiation as to the nature of the obstruction is interesting, but it is not essential.

Pain, the most constant and early symptom of volvulus in adults, loses in a great measure its value in these infant cases on account of the difficulty in interpreting it correctly.

The obstruction may be high or low in the intestinal canal. If it is high the vomiting begins early, and any attempt to fill the stomach will be followed soon by the expulsion of the food. The vomiting may be not unlike that of pyloric stenosis except that the vomitus contains intestinal content and bile. If the volvulus is of the sigmoid flexure the vomiting may be a late symptom. Ordinarily the vomitus becomes feculant, but fecal vomiting is not so constant a symptom as with the other forms of acute obstruction.

The intermittent character of the symptoms seems to be more frequent in infants than in adults. Kredel [10] reports a case of volvulus in an infant in the tenth week of life. The child had for three weeks been subject to attacks of vomiting with symptoms of obstruction. Later the vomitus contained bile, but two days before death the stools were normal. Autopsy showed a volvulus of the whole small intestine. This case is

[9] Deut. Zeitschr. für. Chir., Bd. 68, s. 185.
[10] *Ibid.*, Bd. 69, s. 90.

referred to because the symptoms are so similar to those in our case. No intestinal peristalsis was observed and no distention of the loops of intestine was evident.

Local meteorism if present with the symptoms of acute obstruction is diagnostic, but it may be found, either because gas has not accumulated within the intestine forming the volvulus, or if it has been formed in sufficient volume to distend the intestine it has escaped beyond the twist or through a perforation of the bowel. The distention of the intestine with gas is secondary to the disturbance of the circulation rather than to any actual increased formation from the decomposition of the contents. The foul bloody content is also secondary to the circulatory disturbance, the obstruction of the venous return being principal factor.

(To be continued.)

THE TUBERCULOSIS PROBLEM OF THE MIDDLESEX NORTH DISTRICT, MASSACHUSETTS.*

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THE Middlesex North District of the Massachusetts Medical Society was established Oct. 2, 1844, and at present comprises the city of Lowell and the following towns: Acton, Bedford, Billerica, Boxborough, Carlisle, Chelmsford, Dracut, Dunstable, Groton, Littleton, Pepperell, Tewksbury, Tyngsborough and Westford. The combined population is about one hundred and twenty-five thousand, four fifths of which population is confined to Lowell. The soil varies from a sandy porous soil in the south and easterly sections of the district to a hard, rocky soil in the northern and westerly parts. There is an abundance of trees of all ages and kinds throughout this territory and the whole is a typical New England agricultural district. The total area of the district is about twenty-five thousand acres, a trifle more than that of the city of Worcester, Mass. The altitude varies from 140 to 150 feet above the sea level to 400 or 450 feet, the lowest part being at Dracut and at Tewksbury; the highest elevation at Westford. The nearest point to the sea is at Billerica (twenty miles inland); the farthest point is at Pepperell (about forty miles from the sea).

LOCAL CONDITIONS.

Lowell has an area of about eight thousand acres, with a population of over ninety-six thousand. It is a manufacturing city, one of the largest in this country, and, as such, offers an opportunity for studying many phases of the tuberculosis problem.

When in 1822 the center of industrial activity in this country was transferred from Waltham to Lowell the wise provisions which Francis C. Lowell had inaugurated at the former settlement found a much wider field of application and " the Lowell system " became an essential part of all future manufacturing projects. This " system " consisted in the erection of substantial brick tenement and boarding houses, wherein operatives were required to dwell, the rentals and price of board being placed at a low rate. These boarding houses were placed in charge of matrons selected for that purpose, and every effort was made to continue the simplicity and purity of the rural homes which the operatives had left to enter the mills. The kind and the standard of the food was selected, rules of conduct were enforced, hours of work and sleep prescribed, schools, churches and amusements provided, a hospital and reading room maintained and all done without the exercise of paternalism or restraint. Board was $2.90 per week for a man, and $2.25 for a woman; this included food and lodging. Tenements consisted of eight or nine rooms each and cost the operative $7.00 or $8.00 per month. The living and sleeping rooms were arranged so that every room had one or more window openings to the outer air. Sunshine had free access to every sleeping room at some time during the day. All this detail is important in the consideration of the question of tuberculosis, as will be seen later. Before going further, however, it will be necessary to trace briefly the evolution in nationality as noted among the Lowell mill operatives. When the mills were established the operatives were drawn from the towns and villages of New England, — strong, robust and healthy. As the industries developed and the demand for men skilled in the art of calico-printing became pressing, a large influx of workmen of a superior class came here from England, Scotland and other countries. From this combination resulted an intelligent social organization maintained until this day to a greater or less degree. The mills soon attracted immigrants, especially those seeking homes in America. These were principally Irish, who lost no time in sending for parents and friends whose coming necessitated the erection of tenement blocks outside the mill districts. The places vacated in the corporation boarding houses were soon occupied by French Canadians who were now flocking in large numbers to the growing mill town. Year by year a greater number of these Canadians remained here and following the example of the Irish built homes, churches and schools. In 1885 the census showed that 25,000 were natives of Massachusetts, 10,000 of other New England states, 12,000 natives of Ireland, and 8,000 natives of Canada. The Swedes who were the next to swell the population partook of little or none of the boarding-house stage, but entered at once upon a housekeeping basis. The same is partly true of the Portuguese and Poles, comparatively few of whom lived at the corporation boarding houses. This resulted in a gradual converting of the boarding-house blocks into corporation storehouses, now greatly demanded by increased bulk of business. When the next

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race appeared, they naturally colonized in localities where living might be obtained most cheaply, and we find the Greeks occupying the tenement property erected for the early Irish and French families now subdivided and multiplied and living in residential portions of the city more harmonious to their social state. To-day the population is divided into 42.3% born in Massachusetts, 14.6% born in other states, and 43.1% foreign born. Over 77.9% of the total population are of foreign parentage. There are 25,466 of Irish parentage, 24,928 Canadians, 8,000 Greeks, 2,500 Portuguese, and 1,500 Poles. The number employed in manufacturing establishments is 47,748 (30,467 males and 17,281 females); of this number 14,928 (7,832 males and 7,096 females) are between the ages sixteen to twenty-four years, and 21,988 (14,757 males, 7,231 females), between twenty-five and forty-four years. The result of these various changes is that the most perceptible classes of the community, so far as tubercular infection is concerned, are living under unhygienic and unsanitary conditions far worse than any previous class of employees. Most of these people have come from a warmer and more tropical climate where they lived as shepherds or agriculturists; here they are confined in overheated, dusty, indoor occupations, and at night return to illy ventilated rooms where overcrowding is the rule and bodily maintenance reduced to a minimum. Their living and sleeping rooms had often been occupied by consumptives among previous inhabitants. The following table shows the association of density of population and death-rate:

	Total Population Census 1900.	Total Number Dwellings.	Total Number Tenements.	Deaths Year 1905.
Whole city,	94,969	13,671	19,279	1,895
Ward I,	8,248	1,077	1,446	*134
Ward II,	10,821	1,107	1,715	146
Ward III,	10,052	1,594	2,293	159
Ward IV,	9,315	1,257	1,916	173
Ward V,	8,973	1,118	1,786	199
Ward VI,	10,706	1,839	2,339	181
Ward VII,	18,490	1,987	3,213	*347
Ward VIII,	9,655	2,096	2,288	133
Ward IX,	8,709	1,594	1,895	*131

A recent census (Dec. 1, 1906) was able to locate 486 cases of tuberculosis living in Lowell.

HOSPITALS.

The Lowell Corporation Hospital was established in 1839 when various corporations agreed "to establish and maintain a hospital for the convenience and comfort of the persons employed by them when sick or needing medical or surgical treatment," and "to contribute funds necessary for that purpose." The management is in the hands of a board of trustees, the members of which are the local agents of the several corporations. The number of beds is ninety. There is a daily out-patient clinic, and a separate building for contagious and infectious cases, exclusive of tuberculosis. The operatives are treated free, and if confined to the hospital are maintained at the same rate as paid at corporation boarding houses. Patients known to be afflicted with tuberculosis are not received, although yearly a certain number find their way in to the wards. The following list covers the cases of tuberculosis treated at this hospital since 1895:

	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
Males,	3	4	3	3	2	7	5	4	4	3	7
Females,	3	6	5	3	4	2	6	3	3	3	2
Improved,	1	9	4	4	2	1	9	2	7	4	7
Unimproved,	2	2	0	0	1	1	3	0	1	2	1
Died,	1	0	4	0	3	6	0	1	1	0	0

It is interesting to note here that bone tuberculosis is a common form of the disease among the Greek operatives coming to this clinic. No such predisposition is known in their own country and its origin here is yet unexplained.

St. John's Hospital was established in May, 1866, under the jurisdiction of the Sisters of Charity. There are eighty-seven beds, besides a daily clinic. Neither tuberculosis nor other infectious or contagious diseases are accepted. An average of 25 cases of consumption yearly are treated in the wards.

The Lowell General Hospital was incorporated in 1891. By a gift of Frederick Fanning Ayer, of New York City, a tract of land of some forty-one acres was added in 1906 to the hospital site, and on July 19 a tuberculosis camp of twenty-eight beds was opened. Patients were received whether able to pay or not. Of the 65 applicants, 39 were accepted,—8 incipient cases, 20 less favorable, and 10 advanced. The camp was closed Oct. 15. Three persons remained the full three months. Their average gain in weight was nineteen pounds. Eleven stayed two months, with an average gain in weight of 9.7 pounds. The greatest gain was twenty-six pounds. The average stay at the camp was 6.5 weeks. Thirty-three cases were classed as improved, having gained in weight or in the condition of the local disease, and 6 are reported as "on the high road to becoming 'apparently cured' by continuing their treatment at home." Tubercle bacilli were present in the sputum of 24 at entrance, and of 19 when discharged. Nineteen of the patients were mill operatives, 4 were school children, 4 housewives, 2 machinists, 2 shoemakers, 2 night watchmen. On account of no provisions being made for heating the shacks it was deemed advisable to close the camp until early in the spring.

The Lowell City Hospital is an institution under the management of the City Board of Charities. It has eighty-seven beds in its hospital department for the care of the indigent. Tuberculosis in all stages is admitted and the yearly average is 40 patients. The tubercular and the non-tubercular inmates of this institution are separated.

In addition to the above the Board of Charity appoints annually six physicians who care for the sick poor applying for aid. Each physician has an assigned district and also serves during the

* Exclusive of deaths in hospitals.

year at a daily clinic connected with the charity department. A large part of the tuberculous poor of the city come to the notice of this corps of physicians.

DISTRICT NURSING.

During the past year the Associated Charities of the Ministry-at-Large have provided means for maintaining a district nurse whose services for tuberculous patients are available.

BOARD OF HEALTH.

This department is organized according to statute, and consists of three members, besides an agent, plumbing inspectors, etc. It employs an efficient bacteriologist and makes examinations of sputum, throat cultures, blood, etc., free of charge. The result of sputa examinations is as follows:

	Positive.	Negative.	Total.	Deaths.
1896	16	30	46	207
1897	26	35	61	189
1898	27	38	65	208
1899	28	54	82	197
1900	43	63	106	186
1901	49	121	170	170
1902	27	114	141	164
1903	70	154	224	132
1904	92	165	257	143
1905	139	287	426	170
1906	103	312	415	161

In September, 1902, the Board of Health placed tuberculosis on the list of contagious diseases to be reported to that department by physicians attending the same. Little attention was given to the action of the board, and on April 20, 1906, the following letter was sent to every practicing physician in Lowell.

HEALTH DEPARTMENT,

LOWELL, MASS., April 20, 1906.

At a meeting of the Board of Health held to-day it was voted:

That a circular letter be sent to the physicians of this city reminding them of the existence of certain regulations of the board regarding the reporting of all cases of tuberculosis, and that further neglect of this requirement will be followed by a penalty.

Your attention is hereby called to Rule No. 1 of the Rules and Regulations of the Board of Health of Lowell, viz.: "When a physician knows that a person whom he is called to visit is infected with smallpox, varioloid, diphtheria, membranous croup, scarlet fever, measles, typhoid fever, cerebrospinal meningitis, 'pulmonary tuberculosis,' or any other disease dangerous to the public health, he shall immediately give notice to the office of the Board of Health."

We desire to call special attention to the fact that tuberculosis is included in the list of diseases which must be reported to this office, and to inform you that we intend to take cognizance of all infringements of this rule.

It often happens that a family, having among its members a case of tuberculosis, moves out of a tenement, and another family, in ignorance of the danger, moves in without there having been any preliminary cleaning or disinfecting of the premises. To add to the safety of these innocent or ignorant families, the Board of Health desires to be notified of all cases of tuberculosis that come to the attention of the medical profession.

In cases reported as well as in cases proven positive by the bacteriological department no further action is taken by the health department. No literature has ever been issued by this department relative to the prevention of tuberculosis.

The health department disinfects premises where tuberculous patients die; also where a tuberculous patient has lived, if requested by a family moving in, or by a regular physician.

There is no penalty for leasing infected quarters, nor is there any system carried out by which the department has any knowledge when infected premises are vacated or new quarters occupied.

There is no systematic inspection of tenements. Neither are schools, shops or factories inspected by any local authorities.

The employers have limited their assistance to maintaining the Corporation Hospital and in contributing individually to the support of the district nurse.

The cattle inspection is done by a competent veterinarian.

The Lowell Anti-tuberculosis Association was formed in January, 1906. Its objects are to promote a careful study of conditions regarding tuberculosis in Lowell; to educate the public opinion as to the cause and prevention of tuberculosis; and to arouse general interest in securing adequate provisions for the proper care of tuberculous patients in their homes and by means of hospitals and sanatoria. The first work of the association was a public exhibition in March at which an attendance of more than ten thousand was recorded. Lectures were given in the French, Greek, Polish and Portuguese languages; literature was freely distributed, and an awakening of public interest manifested in an unmistakable manner. A committee of the association investigated sites for a day sanatorium, and an appeal was made to F. F. Ayer, Esq., of New York City, for funds to carry out the project. Mr. Ayer added some forty-one acres to the site of the Lowell General Hospital and gave the sum of six thousand dollars to equip a tuberculosis camp in connection with that hospital. This is given in detail under hospitals in this report. The Anti-tuberculosis Association has appointed a committee to secure a census of tuberculosis in Lowell; it has requested the school authorities to have all the school buildings fumigated at least twice a year, and that each room be regularly and thoroughly cleansed; it has called attention to the dangers of infection in the use of public telephones and has suggested means for preventing the same; it has suggested that the streets be watered daily with some disinfectant to reduce the annoyance arising from dust; it has requested that placards prohibiting spitting in public places be placed in schools, factories and public places. The society is ready to co-operate with the committee on tuberculosis of the medical society in furthering any plans suggested for fighting tuberculosis.

No church organization has taken active steps in anti-tuberculosis work.

The physicians have shown a marked increase of interest since the exhibition here in March and this interest cannot fail to be of great benefit to this committee.

REPORTS OF TOWNS.

Acton. — Has a population of about two thousand; no registration required. Has disinfection of premises; does not prosecute for leasing infected premises; does not inspect schools, tenements nor factories; there are no provisions for the sick, and no organization interested in the work; cattle inspection is thorough.

Bedford. — Population about twelve hundred; registration is not required; no fumigation carried out; no inspection of any kind, except cattle which is poorly done; no interest by lay organization.

Billerica. — Population about three thousand; it has two mills for the manufacture of flannel cloth, and a Dyewood and Chemical Company; the Board of Health does not require registration of tuberculosis; does not disinfect premises nor penalize for leasing infected quarters; there are no systematic inspections of tenements, workshops or factories; there is no hospital accommodation, nor visiting nursing organization, neither have employers of labor taken any steps to help the employees; there are no classes for instruction, and the church organizations have shown no active interest in this work; the physicians are interested ; there is an inspection of schools; the inspection of cattle is thorough.

Boxborough. — No local physician; population three hundred and twenty-five. Negative report to all questions covering foregoing data.

Carlisle. — No local physician; population four hundred and eighty. Negative answers to all the questions.

Chelmsford. — Population about four thousand. At North Chelmsford are large mills for woolen yarn manufacture employing nearly two thousand hands; there is also a large foundry, as well as a granite works. The south and center are agricultural districts, and a member of the tuberculosis committee writes: " I only know of two cases in this town, and they are well cared for and instructed. We have no congested tenement districts. I believe this is one of the cleanest and healthiest towns in the state, and in no need of active crusade against tuberculosis, but am in favor of sending literature on the subject to every family." A negative answer follows every question submitted, except number 13 which says the doctors are interested.

Dracut. — Population about thirty-five hundred; has large woolen mills, many of the operatives living in Lowell. A negative report to all questions submitted, except " cattle inspection," said to be thorough.

Dunstable. — No local physician; population four hundred and twenty-seven. A farming town with no manufacturing and no tenement houses. Cattle inspection thorough.

Groton. — Population about two thousand. The Board of Health is elected by the people; notification of tuberculous patients is required and premises are disinfected upon application of family or physician; there is no penalty for leasing infected quarters, neither is there any inspection of tenements or schools; there are no hospital provisions for the sick, and there is no nursing, visiting association, nor any other provision for instructing the laity concerning tuberculosis; the physicians seem interested in the subject; the inspection of cattle not thorough.

Littleton. — Population about twelve hundred; the Board of Health is elected by the people; notification is required, and disinfection is carried out when requested; in all other respects the conditions are identical with those existing at Groton.

Pepperell. — Population about thirty-seven hundred; the principal industry is that of papermaking; like Groton and Pepperell the Board of Health is elected by the people; the board does not require notification in tuberculous cases; there is no penalty for leasing infected quarters; there is no inspection of schools, tenements or factory; the employers have taken no active steps to better the condition of the employees; there is no system of inspection, nor any nursing or visiting organizations; the inspection of cattle lacks thoroughness; doctors are interested.

Tewksbury. — Population about four thousand. The Massachusetts State Hospital is located in this town. The following is a brief account of the work done at this institution in so far as it relates to tuberculosis:

" In the State Hospital there is a total capacity of 1,800 beds divided as follows: general hospital, 500 beds; dormitories for convalescents and infirm, 600 beds; department for the insane, 700 beds.

" There is a special hospital for tuberculosis for men containing 100 beds; this hospital is situated quite a distance from the rest of the institution. There are two camps connected with this hospital with an additional capacity of 36 beds.

" We are at present constructing a detached hospital for tuberculosis for women with a capacity of 40 beds. At present our tuberculous women are kept in a separate ward in one of our regular hospital buildings.

" The tuberculous patients among the insane are at present treated in a camp near our insane department; there are 16 patients thus treated in our department for insane women. As we have but a small number of insane men, it is only occasionally that there is a case of tuberculosis among them, in which case, or in the case of any insane women that we cannot safely care for in our camp, they are treated in single rooms with as much isolation as possible from the other patients.

" There has been appropriated for this class of patients $60,000 for building and furnishing of the men's hospital in the year 1898, and $25,000 for a hospital for women in the year 1904.

" During the last fourteen years there have been treated something over 5,000 cases of tuber-

culosis in its various forms and during that time there have been 1,628 deaths from tuberculosis in its various forms. During the last six years we have treated 129 cases sent to us from Lowell. It is rarely that cases of tuberculosis are sent to the State Hospital in the very earliest stages, but we receive a great number of the far advanced cases.

"The State Hospital is an institution for the poor to which are admitted all needy persons sick or infirm within the state without a settlement in Massachusetts. It was established in 1852. During the last year there were admitted to the general hospital wards 4,277 cases."

The town of Tewksbury requires registration of tuberculosis, and disinfects premises when requested by the attending physician; there is no penalty for leasing infected quarters, and tenements and schools are not inspected; there are no classes of instruction, visiting, nursing, nor church organizations in this town interested in tuberculosis work; the inspection of cattle is as thorough as required by state officials; tuberculin is used on quarantined or suspected animals only.

Tyngsborough. — Population about eight hundred; registration is not required; disinfection of premises is carried out only in case of death of the patient and upon request of the attending physician; there is no penalty for leasing infected houses, nor any inspection of tenements; schools are inspected, but not in reference to tuberculosis; there are no church or district nursing organizations, nor any classes of instruction concerning tuberculosis; the inspection of cattle is done by a farmer and not by a veterinary surgeon.

Westford. — Population about twenty-seven hundred; worsted and yarn mills, besides granite quarries, are located here; the Board of Health consists of the selectmen and is organized according to statute; registration is not required, and a negative answer follows each question submitted except that relating to the doctors' co-operation.

TREATMENT OF PROSTATIC HYPERTROPHY. THE CONSIDERATION OF THE VARIOUS METHODS OF TREATMENT BASED UPON THE MORTALITY AND THE REPORT OF TWENTY-FOUR CASES OF MEDIAN PERINEAL PROSTATECTOMY.

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The consideration, which has been given to the operative aspect of prostatic hypertrophy, especially by the genital-urinary surgeons of America, France and England, has, during the past few years, established certain definite operative procedures, which, by general improvement in details and increased operative experience, has reduced the mortality, so that to-day the prognosis regarding death from such operations, and also the operative results are very different from ten years ago.

The advance in the subject has been made through the institution and observance of details in the already established surgical measures, rather than by any new operative method, and the large number of cases, from which conclusions may be drawn, has emphasized the special values of the various forms of operative treatment.

Certain operations, castration and vasectomy, have been wisely relegated to the past as the perineal and suprapubic methods have come to the fore. Castration and vasectomy have an established mortality of 17% and 9% respectively, and the results are, on the whole, poor. Even the Bottini operation has recently declined in favor because of the brilliancy of the radical operative results, and perhaps justly so as an operation for all cases, but it is the writer's belief that the operation is of the greatest service when performed by the hands of certain men, especially in affording relief to those cases which will not stand the shock of general anesthesia or more radical procedures, and therefore, cannot be dispensed with.

While to draw the best conclusions regarding the relative merits of the different operations one should learn the limitations of the various methods by personal experience with each, no operator has yet had sufficient experience to justly warrant comparative conclusions, and we must, by necessity, have recourse to compiled statistics.

The choice of the operative methods change from time to time, rather from the influence of good writing and the personal characteristics of brilliant operators, than from the actual merit of the method advocated.

It must be realized at the outset that patients suffering from hypertrophy of the prostate are, as the very name of the malady implies, persons past the prime of life. They must always be considered poor surgical risks. They are old men with but a comparatively short time to live, and the operative tax imposed upon them must always be the smallest possible.

The salient point in the choice of one or another method in the treatment of a given condition, must be the respective mortalities of the different methods. Following is a list of the existing methods for the treatment of senile hypertrophy of the prostate, with their respective mortalities:

	Cases.	Per cent Mortality.
Catheterization,	207	7.7
Palliative operations,	168	36.9
Partial prostatectomies,	167	19.1
Bottini operation,	1,289	5.3
Total suprapubic prostatectomy,	406	9.6
Total perineal prostatectomy:		
1. Dissecting,	563	5.5
2. Enucleation,	192	4.7

Deaths following all forms of prostatic operations are due to four general factors. 1. Uremia. 2. Sepsis. 3. Shock. 4. Pulmonary complications. These conditions are common to all forms of prostatic operations, but certain of them are more especially associated with one or the other methods.

1. *Uremia.* — Is less often associated with the

Bottini operation (about 25%) and occurs in about the same proportion of cases of suprapubic and perineal operations (about 35%).

2. *Sepsis.* — Is by far the largest factor contributing to the mortality of the Bottini operation (about 50%). The perineal operation is next (about 17%) and the suprapubic method has the lowest percentage from this cause (about 8%). The relative percentage of deaths from sepsis is dependent upon the relative degrees of drainage obtained by the different methods.

3. *Shock.* — As would be expected, the death from shock with the Bottini operation, an operation done under local anesthesia, is the smallest (about 5%). The perineal operation is next (about 20%), and the suprapubic operation the highest (about 30%). The difference in the percentage of deaths from shock, between the suprapubic and perineal operations, illustrates the greater severity of the suprapubic method.

4. *Pulmonary complications.* — The mortality from pulmonary complications in the Bottini operation is comparatively low (about 8%). The reason is obviously because the patient is up and about immediately following the operation, and because of the general anesthesia. The perineal operation shows a lower mortality than the suprapubic operation, dependent upon the same fact. The respective mortalities are, perineal operation (about 17%), suprapubic (about 22%).

We have at our command to-day, the following recognized procedures for the surgical treatment of prostatic hypertrophy: 1. *Catheterization.* 2. *Palliative operations for simple drainage.* 3. *Partial prostatectomy.* 4. *Bottini operation.* 5. *Total suprapubic prostatectomy.* 6. *Total perineal prostatectomy.*

1. CATHETERIZATION.

The question as to when a patient shall be given a catheter for daily use is a most disputed one. Less consequence, perhaps, is attributed to this point by the operator than by the physician, who is to recommend operation to a patient who is in fairly good health except for frequent urination, and who is to face the result of his judgment.

The cry has been, "If we could get the cases early, we would have a smaller mortality and better results." This is unquestionably true.

Most men who have had the care of patients suffering from prostatic hypertrophy can recall patients who have used catheter satisfactorily for years and who have died from some intercurrent disease. On the other hand, they can also recall cases in which they have advised the use of the catheter and the patient has declined rapidly and died. The first class of cases are the more vigorous individuals with less pronounced secondary changes in the upper urinary passages, while the second class are the less resistant individuals.

There is always the risk of having the patient attacked by the complications accompanying catheterization, namely, inflammation of the gland, prostatic abscess, epididymitis and orchitis.

Unfortunately, we have but few observations on the mortality due to regular catheterization in prostatic cases. The observations, however, which have been recorded on this point, are as follows:

	Cases.	Deaths.
Rovsing,	126	10
Casper,	51	3
Watson,	30	3
Mortality,		7.7%

The facts here given surprise one in showing that regular catheterization actually has a mortality higher than the Bottini operation, or even total perineal prostatectomy. Through our neglect to make observations upon this elementary important point, the truth of the above figures is rather startling, and it becomes a question, if one is really conservative, in advising that patients, who are able to introduce and take care of a catheter, should employ this form of treatment until the catheter can no longer be introduced because of the increased obstruction, with the hope that the individual's life will terminate before this condition takes place.

We have no evidence pointing to the fact that regular catheterization arrests the hyperplastic changes in the gland, and there is, on the other hand, much evidence that patients who have been employing a catheter arrive at a time when they can no longer introduce it into the bladder because of the increase in the obstruction, and that they have attacks of congestion of the gland, producing acute retention requiring tapping and often immediate operation.

In recommending the use of a catheter, these extremely important facts must be held in mind, for in postponing the evil day, the patient is subjected to operation when the bladder and kidneys have become damaged, and the patient's vitality is lessened in consequence and because of his greater age.

Under these conditions, the patient may be in a broken down condition, in which surgical intervention must be either hopeless, or subject the patient to the gravest dangers.

2. PALLIATIVE OPERATIONS.

The establishment of drainage by opening into the bladder either suprapubically or through the perineum, without attempting to remove the obstructing gland, in 152 cases shows 54 deaths, a mortality of 35+%.

The high mortality attending this procedure is due largely to the fact that the patients have been in very poor condition. They are the cases palliated by catheterization, or who have sought aid at a time when less radical measures would be too unsafe to warrant their undertaking.

Simple drainage should be purely a palliative measure performed through necessity to relieve suffering from retention, and should not play any real part in the consideration of the operative treatment of prostatic hypertrophy.

The operation of simple drainage is the least severe method in relieving the retention, when no instrument can be introduced into the bladder through the urethra even after the tension in the bladder has been relieved by suprapubic tapping.

The procedure may, at times, be necessary to control hemorrhage following prolonged attempts at catheterization.

With the establishment of such drainage, suffering is relieved, cystitis is improved, and the renal tension is lessened. Depending upon these well established facts, some operators prefer to perform simple drainage as a preliminary step to removal of the obstructing gland, using the suprapubic opening to aid the enucleation of the gland through a perineal wound, the so-called combined operation.

It is the writer's personal feeling that the only reason for employing the combined operation, which has a higher mortality than either the perineal or suprapubic operations (12+%), should be the necessity of establishing suprapubic drainage to relieve complete retention and subsequent improvement in the patient's condition, warranting total removal of the obstructing gland.

Patients requiring palliative drainage are in very poor condition, which is the point, rather than the idea of lessening the intra-vesical tension prior to prostatectomy. So far as the relief of tension in the urinary tract is concerned, it hardly seems necessary to subject the patient to a preliminary operation to gain this, for if the gland is removed entirely through the perineum or over the pubes, such drainage is already established and only a few additional minutes are required, which does not add materially to the shock of the operation, and the necessity of subjecting the patient to a second operation is obviated.

Palliative drainage should be employed only as a last resort in the feeblest patients, because it is the smallest tax that can be imposed upon the individual and accomplish the necessary object, and should be done under local anesthesia when possible.

3. PARTIAL PROSTATECTOMY.

It has been proven that the removal of the parts of the prostate causing the obstruction is not attended with such satisfactory results as complete removal of the gland, and the mortality is comparatively high. A series of 160 cases shows 22 deaths, a mortality of 12.5%. The procedure has nothing to recommend it, and is now seldom employed.

4. BOTTINI OPERATION.

The principle of this operation is to make galvanocautery incisions in the obstructing portions of the gland by means of a specially devised instrument. The newly formed channel through the obstructing portions of the gland extend along the sides of the prostatic urethra and widen this portion of the canal, allowing the free passage of the urine.

It is an operation of technical details, and consequently should not be generally employed, but should be practiced by only those who have given the matter special study.

The success of the operation depends primarily upon a careful study of the prostate by the cystoscope, determining the exact character of the obstruction and the relative sizes of the respective lobes. Without a satisfactory cystoscopic examination and determination of these points, the Bottini operation is not only dangerous, but unjustifiable. If the instrument is not properly placed, the heated knife may be drawn through the prostatic capsule, causing extravasation of urine into the rectum, with resulting urethra-rectal fistula, or burning anywhere except through the prostate, will result in suppuration.

It is an operation performed under cocaine anesthesia of the urethra and bladder, and having the great advantage of not necessitating general anesthesia, it becomes the operation best suited for those patients who are too feeble to stand one of the more severe operations of complete prostatectomy.

Provided everything goes well, the patient need not be confined to bed at all, and the benefit of the operation becomes apparent almost immediately.

In the great majority of cases the result obtained by this comparatively simple, yet extremely technical operation, is quite as satisfactory in relieving the patient's symptoms as complete prostatectomy.

It cannot be emphasized too strongly, however, that the Bottini operation is an operation to be performed by comparatively few men, who have taken the pains to master the technical difficulties of cystoscopy and the finer manipulations of bladder instrumentation.

The mortality attending the operation is comparatively low, which fact becomes significant when it is realized that most of the cases subjected to this operation are those considered too feeble to be subjected to more radical measures.

In a series of 1,289 Bottini operations in literature, there is a mortality of 5.4%. Rorig has performed 203 such operations with only one mishap and one death, which emphasizes the point that one proficient with a certain operation may expect the best results.

The writer has reserved this method for those cases which are physically unfit for the median perineal operation. Cases which have been considered too feeble to undergo the perineal operation, or in whom cardiac lesions or renal insufficiency has been demonstrated, the severity of which would lead one to entertain a fear of etherization, have been subjected to the Bottini operation. He has operated upon 13 cases, with 2 deaths, which deaths, however, could not be attributed to the operation, one occurring from angina pectoris fourteen days after operation in one who had suffered severely from this disease for years; the other from intestinal strangulation, due to an existing umbilical hernia.

5. TOTAL SUPRAPUBIC PROSTATECTOMY.

It is generally admitted by everybody acquainted with the subject that the mortality of the suprapubic operation is higher than by any other form of radical operation. The following collection of cases is illustrative:

	Cases.	Per cent. Mortality.
Proust,	244	12
Watson,	263	13.3
Escart,	164	18.0
Tenney and Chase,	396	9.8
Freyer,	205	7.3

There has been a recent interest in performing the suprapubic operation, instituted largely by Freyer, of England, in 1903. Mr. Freyer's series in this publication consists of 45 cases, with a mortality of 11.1%. Since then Mr. Freyer has published a series of 205 cases, with a mortality of 7.3%, by far the best mortality of any operator doing the suprapubic operation. What is most important, however, is that even this low suprapubic mortality, attained by one most proficient with this operative method, is higher than the mortality of the recorded perineal operations performed by everybody.

Although the method may appeal more generally to surgeons, it can hardly be justifiable to subject the patient to the well established greater risk of life (about 3% over the perineal route), with no expectancy of a better functional result.

6. TOTAL PERINEAL PROSTATECTOMY.

We have two distinct methods for the removal of the prostate through the perineal route, with modifications of each: 1. Perineal dissecting operations as done by Albarran, Proust, Rydygier, Young and others, by which methods the gland is approached through some form of perineal incision, the median raphe of the perineum divided, the gland drawn into the wound by some form of special tractor introduced into the bladder, and the gland removed through the posterior surface of the capsule. 2. Median perineal prostatectomy, performed through a median perineal incision, as suggested by Gouley as far back as 1873.

1. *Perineal dissecting operations.* — During the past few years operations have been devised by which the hypertrophied gland is approached by dissection of the perineum through a number of different incisions. The various methods are all essentially the same. The median raphe of the perineum is exposed and divided and with some form of tractor, introduced through an opening in the membranous urethra; the gland is drawn downward, and being freed from the rectum by blunt dissection, is made to present in the wound. The posterior surface of the capsule of the gland is opened by a variety of different incisions, each of which is supposed to possess special virtue. The chief points claimed are to save the ejaculatory ducts, which pass downward close to the posterior median line of the gland and but a short distance inside the capsule, and also to remove the hypertrophied glandular tissue without destroying the prostatic urethra.

It is yet to be proved that the preservation of the prostatic urethra by these dissecting operations has any advantage over the results obtained by the suprapubic or perineal enucleation methods in which instances the prostatic urethra is removed with the gland. It is acknowledged by some who have done the greatest number of these dissecting operations, that they often destroy the prostatic urethra, although attempting to save it, and state further that it makes no difference in the result.

As to the value of saving the ejaculatory ducts, it must be borne in mind that the great majority of patients who suffer from prostatic hypertrophy have passed the age when sexual intercourse, other than of a perverted sort, has lost its charm and fruitfulness. Statement of facts are still wanting that the sexual power is preserved to any greater degree by the dissecting operations than by the median perineal operation.

Following is a list of the most recently reported cases of the perineal dissecting operations with their accompanying mortalities:

	Cases.	Mortality.
Young,	150	4.6%
Ferguson,	103	3.6%
Albarran,	73	4.0%
Hartmann,	56	9.0%
Pauchep,	53	7.0%
Leguen,	45	8.8%
Murphy,	51	3.9%
Rafin,	32	6.2%
Total number of cases,	563	
Average mortality,		5.5%

2. *Median perineal prostatectomy.* — This method, the one employed in performing the series of cases here reported, has the lowest mortality of any of the radical operations as seen from the following table:

	Cases.	Mortality.
Symes,	34	5.6%
Watson,	54	8.0%
Goodfellow,	78	2.5%
Cunningham,	24	0.0%
Cases,	190	
Average mortality,		4.7%

Technique. — Previous to operation the bowels are thoroughly emptied by cathartics and enema and the perineum is shaved and made surgically clean.

The instruments and at least two gallons of 4% boric acid solution are ready before the patient is placed upon the table. No rubber glove should be worn on the right hand as it hinders in the enucleation of the gland.

After the patient has been placed on the table, a curved groove staff is passed into the bladder while the patient is in dorsal position, it often being difficult to pass urethral instruments when the patient is in the lithotomy position. After the staff has been introduced, it is intrusted to an assistant to maintain in place.

Ether is now started, and as soon as the patient has lost consciousness he is placed in the lithotomy position with the buttocks drawn over the end of the table. The curve of the staff is made prominent in the perineum, and the operator, drawing the testicles forward with the left hand, plunges a curved bistoury into the perineum at a point just below the bulb of the urethra, until the

point of the knife enters the groove of the staff. The blade is made to traverse the groove for a distance of about three quarters of an inch, when it is drawn directly outward, thus leaving a perineal wound about one inch in length. (See Fig. 1.)



Fig. 1. The grooved staff in position. The knife entering the groove of the staff through the perineum at a point behind the bulb of the urethra. The testicles held forward by the left hand.

The operator now grasps the staff by its handle with the left hand and withdraws it slowly, while the index finger of the right hand, introduced into the perineal wound, awaits the presentation of the tip of the instrument. As soon as the tip is detected, the finger is slipped by it into the prostatic urethra. (See Fig. 2.) The staff has served its purpose and is now withdrawn. The finger is forced onward through the prostatic urethra into the bladder, and the character of the obstruction quickly defined.

Dependent upon the character of the obstruction certain clefts are detected, which clefts are the natural lines of cleavage through the urethra and between the obstructing lobes. The finger breaks through the prostatic urethra at such a point as becomes most evident. Often the simple introduction of the finger into the prostatic urethra ruptures it in the weakest point, and enucleation will naturally be started from this point of cleavage. If the obstruction is due to two hypertrophied lateral lobes, and the prostatic urethra is in consequence dilated antero-posteriorly, the line of cleavage will be either at the roof or floor of the urethra, usually the latter. If there is associated middle lobe hypertrophy, the line of cleavage will be at either side of the verum montanum. No rule can be laid down as to where the enucleation should begin, but the finger should follow any line of cleavage which results from the over-distention by it of the prostatic urethra.

Having broken through the prostatic urethra, the finger is passed through the glandular tissue, or rather between the lobes, until it strikes the fibrous sheath or capsule of the prostate, from which the lobes are separated by sweeping the finger between it and the gland. Suprapubic



Fig. 2. The staff being withdrawn. The index finger of the right hand passed beyond the tip of the staff into the prostatic urethra.

pressure with the left hand forces the prostate downward, and the enucleation becomes a bimanual procedure. (See Fig. 3.)

Often the lobe can be entirely separated from the capsule and withdrawn by the enucleating finger, but sometimes it is necessary to grasp it by Vulsellum forceps, and drawing downward and to one side, the gland is separated from the posterior segment of the vesical sphincter, to which point it is most firmly attached, and which sphincter must not be injured. (See Fig. 4.)

After one lobe has been removed, the remaining lobes are enucleated in a similar manner, care always being exercised to perform the separation of the attachment between the gland and the sphincter in a most delicate manner, because upon the preservation of the sphincter depends largely the control of subsequent voluntary urination.

It is possible in many cases to separate the whole gland from the prostatic capsule and remove it *in toto* with the prostatic urethra. This, however, is not advisable, because of the possibility of over-distention and rupture of the compressor urethra muscle, which may be avoided by removal of the gland by *morcellement*.

The enucleation is usually easy if the finger is kept in close contact with the gland surface. It is when the finger is carried into one of the lines

of cleavage of the capsule itself that the enucleation becomes so difficult and hemorrhage results, because within these layers of the capsule is situated the prostatic plexus of vessels.



FIG. 3. The right index finger enucleating the gland from its sheath or capsule, while the left hand fixes the gland by suprapubic pressure.

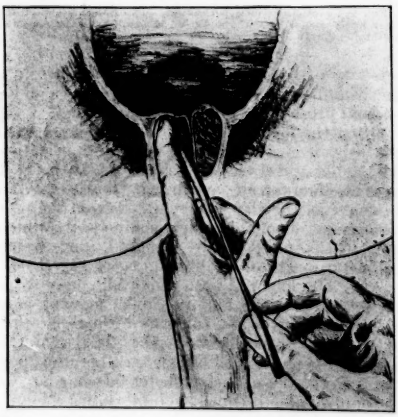


FIG. 4. The right lateral lobe grasped by vulsellum forceps drawing it downward and to the left, while the index finger of the left hand separates the attachment of the gland from the vesical sphincter.

After the gland has been enucleated, the capsule should be found intact, the floor of the bladder uninjured and the vesical orifice left as a well defined muscular ring, admitting the passage of the index finger. (See Fig. 5.)

The bladder should now be examined by the forefinger of the right hand introduced through the vesical sphincter, while the left hand exerts suprapubic pressure; thereby the bladder surface may be palpated and stones or diverticula may be detected if present.

If stones are found, they should be removed by stone forceps provided they are not too large to be drawn easily through the bladder orifice. If they are large, they should be crushed and then removed in pieces.

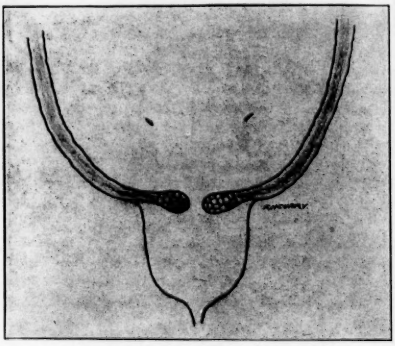


FIG. 5. A diagrammatic outline of the part after removal of the gland. The capsule and floor of the bladder should be unruptured and the vesicle orifice left as a distinct ring.

An irrigating tube should be introduced into the bladder and the viscus thoroughly irrigated with hot boric acid solution, and all fragments of stone, if present, washed away. The capsule, perineal wound and anterior urethra should also be thoroughly irrigated. If the capsule has not been injured, little bleeding results, and the hot solution is usually sufficient to arrest it.

Drainage. — If there is but little cystitis present at the time of operation, no catheter is retained in the bladder for drainage, but a small cigarette drain is placed just within the vesical orifice and brought out through the perineal wound, the urine thus draining by capillary attraction as fast as it is formed. On either side of the cigarette drain is placed a small iodoform wick.

When cystitis is present in marked degree a de Pezzer self-retaining catheter, No. 30, is placed just within the vesical orifice and brought out through the perineal wound. The small gauze wick is inserted into the capsule behind the catheter and one on either side. The catheter is attached to a siphon drainage apparatus.

When cystitis of a mild character is present, a soft rubber catheter of large caliber is placed through the full extent of the urethra and the wicks inserted into the capsule, as in the drainage through the perineum. The catheter is attached to a siphon drainage apparatus.

By the first method of drainage, when cystitis is not present, the wicks are removed in about twenty-four hours. It is felt that by this means

urinary control is gained quicker and the perineal wound heals more rapidly.

In the second instance, where cystitis is pronounced, constant drainage of the bladder is best obtained through the catheter inserted by the perineal route, and frequent irrigation of the bladder with antiseptic fluids is made possible.

In the third form of drainage, where there is a mild cystitis present, the introduction of the catheter from the meatus to the bladder enables constant drainage and irrigation of the bladder, and at the time when the cystitis has improved sufficiently to warrant the secession of drainage, the perineal wound has been gradually closing.

After-care and medication. — The amount of urine secreted should be carefully measured, the immediate danger being that the kidneys will cease secreting reflexly from the operation. When this unfortunate complication occurs, mustard plasters should be applied to the kidney region, potassium acetate administered by mouth, tr. digitalis in 15-minim doses intramuscularly, and subpectoral infusions of salt solutions should be administered.

As soon as the patient recovers from his ether, fluids should be forced; cream of tartar lemonade, ale, milk and the sparkling waters being preferable. Tea and coffee are excellent as diuretics and stimulants, provided the patient desires them. Ordinary stimulation is indicated according to the patient's condition.

The bladder should be irrigated several times a day with some antiseptic solution when a catheter has been employed for drainage and, when the perineal wound has simply been wicked, the perineal dressings should be changed as often as they become saturated with urine. Unless hemorrhage is present, all wicks should be removed between twenty-four and forty-eight hours following operation.

The most important feature during the convalescence is that the patient should take a fair amount of nourishment. The next most important point is to get him out of bed early, as these patients are especially subject to hypostatic pulmonary congestion. They should sit up in bed usually soon after their ether recovery, and should be placed in a chair the day following the operation unless their condition will not allow it.

It is better that the bowels should not move for two or three days at least, as the wound will be soiled and there is danger of forcing a thrombus from the prostatic venus plexus into the general circulation, with fatal result. To control the bowels, Pil. opii, gr. 1, is administered night and morning. Rectal enemata should never be given for at least a month following prostatectomy for fear of embolus. When it is necessary to move the bowels, it should be done by internal medication.

If the perineal wound is sluggish in healing, it should be occasionally touched with silver nitrate stick.

Sounds should be passed from the meatus to the bladder, beginning about one week after all forms of drainage have been removed, and should continue at intervals of three or four days, until the perineal wound is entirely healed and no evidence toward constriction can be detected.

Throughout the convalescence it is advisable to have the patient live as near his natural habits as possible. If he is a smoker it is unwise to advise against it; but, on the other hand, it should be encouraged.

MISCELLANEOUS POINTS REGARDING THE CASES AND THEIR REPORTS.

The following series of twenty-four cases of median perineal prostatectomy have been performed by the writer during the past three years. There have been no deaths from the operations, and, excepting one, every case of the series is living at the date of this writing. All of these cases have been operated a period over four months.

All the cases except one (Case XX) have control over the act of urination, and each has been benefited by the operation.

There have been two cases requiring a second operation: one for recurrent stone formation and obstruction from an unremoved portion of the gland (Case IX), and another for stricture in the prostatic region, due to neglect to pass sounds. (Case XX.)

The case operated for recurrent stone has been greatly benefited by the second operation and may justly be considered cured. The case operated upon for stricture in the prostatic region has incontinence, presumably from the inability of the urinary sphincters to act because of the connective tissue changes about them.

All the cases have been operated by the median perineal route. This route and method of operating here illustrated has been suitable in all cases. The sizes of the glands have varied from 18 gr. to a fraction over ½ lb. in weight. There have been all forms of hypertrophy, but in no instance did the operator feel that he might have done better to employ some other operative method. The writer is personally familiar with the suprapubic and perineal dissecting operations, and has had experience with a considerable number of the former and a fewer number of the latter.

It is generally stated that the majority of all hypertrophied prostates can be removed through the perineal route, and that the remaining third, because of the large size, are better attacked over the pubes. It is the writer's belief that in paying attention to detail in the operation here illustrated that all glands, no matter how large, may be and are best removed through a median perineal incision. Proof of this remark is found in Case X, in which the gland weighed a little more than ½ lb., an unusually large prostate with a middle lobe, and one which most operators would consider not suitable for perineal operation.

The writer has chosen to do the median perineal operation because of the lower mortality and the obvious reasons upon which this lower mortality depends, and because, further, the results are equal to those of any other method and are obtained as quick if not quicker.

The rapidity with which the operation can be

done requires little more than primary anesthesia and short exposure of the patient, whereby the shock is minimized. The longest time required to perform the operation was twelve minutes; the shortest time, one and one half minutes. Twenty-one out of the twenty-four cases were done in six minutes or under. The case requiring twelve minutes was the gland weighing a fraction over ½ lb., and the other case, which required eight minutes, was difficult because the operator did not keep close enough to the gland, but got between the layers of the prostatic capsule (which always makes the enucleation difficult) and did not immediately recognize the mistake.

The longest administration of ether was twenty-two minutes, the shortest six minutes, the average being less than fifteen minutes.

One cannot but believe that a short etherization and operation does much to lessen the liability of uremia and shock, and that getting the patient out of bed a day or two after the operation lessens the liability of pulmonary complications.

There were six cases with associated vesical calculus; two cases with chronic parenchymatous nephritis and five with chronic interstitial changes.

Only two cases presented a history of gonorrhea, and one who had suffered from syphilis.

Four of the glands had areas suggestive of carcinoma, but microscopical examinations were negative in each instance.

The glands which were in a state of congestion enucleated with greater ease than those not congested. From this fact it might be presumed that the line of cleavage between the gland and its capsule is accentuated at this time. In view of this, it seems best to operate immediately upon these cases in which the congestion has produced acute retention rather than to establish drainage until the congestion has been reduced, as is usually the custom.

It is of interest to note the frequency of associated hemorrhoids and herniæ which is evidence of prolonged straining.

There were fourteen cases which possessed sexual power before the operation and ten in whom the power had been lost. Of the first class six retained the power unchanged, one considered it improved, two have not been heard from, two have not tried and in three the power was lost. Of the second class of ten who had no sexual power before operation, one states that it has returned.

The cases have not been free from complications. Hemorrhage occurred in three cases, requiring packing of the prostatic capsule with gauze saturated with adrenalin. The hemorrhage occurred in one case soon after operation, in another, three days after operation, following a movement of the bowels, and in the third case the bleeding began on the tenth day, without known cause. The hemorrhage in this case (No. XXI) was the most severe, and produced alarming constitutional symptoms, requiring subcutaneous salt infusions every six hours for three days.

Subcutaneous ecchymosis of the scrotum and perineum occurred in several cases, but disappeared with the application of cold within a few days. The infiltration of the lax scrotal tissues with blood occurs easily and emphasizes the importance of keeping the scrotum elevated.

Epididymitis occurred in six cases, usually appearing soon after the perineal wound had closed. In one case it was bilateral and in no case did it go on to suppuration. The application of poultices for a few days, strapping of the scrotum, or even the use of a suspensory bandage was sufficient to remedy the condition.

In one instance (Case No. X), a recto-urethral fistula was formed, probably from the passage of hard feces several days after operation, and possibly aided by prolonged drainage with a hard perineal tube.

Three of the patients developed temporary mental disturbances, following soon after the operation. This condition was not a uremic symptom, but was considered by Dr. E. E. Southard to be a post-operative psychosis. They all regained their former mental state.

The cases in which cystitis was present were irrigated daily when possible, and in several instances this was necessary for weeks following operation.

The cystoscope has been employed in those cases which could be subjected to study before operation. Its use can in no way be considered essential, but knowledge of the actual form of the hypertrophy, the condition of the bladder, and whether or not stones or incrustations are present, enables a more trustworthy prognosis and aids materially in the steps of the operation. In Case No. IX, in which no cystoscopic examination was made, a small hypertrophied anterior commissure was left behind, and had it been possible to have cystoscoped this patient before operation, this extremely rare form of associated hypertrophied tissue would have been discovered and sought for at the operation, and the patient would, in all probability, not have required a second operation for recurrent stone formation.

The absence of mortality in this series of cases seems to the writer to depend largely upon the following points: 1. Study of the character of the obstruction and changes in the bladder, by means of the cystoscope and the functional capability of the kidneys by the phloridzin test, and subjecting those not up to a certain standard to the Bottini operation. 2. Very short etherization and rapid operation. 3. Encouraging the patient to live as near his normal life as possible during his convalescence.

CASES.

I am indebted to the following gentlemen for cases included in this paper: Dr. George Farrell, Dr. Fritz Gay, Dr. John L. Ames, Dr. Willis G. Bond, Dr. Gardner Hall, Dr. John M. C. Murphy, Dr. F. H. Lahey, Dr. J. C. Suckeris, Dr. Lincoln Sise, Dr. Charles Wormelle, Dr. J. A. Shatswell, Dr. P. P. Johnson, Dr. H. H. Smith, and Dr. H. J. Shannon.

(*To be continued.*) 636

HOSPITALS FOR CHILDREN.*

BY ROBERT W. HASTINGS, A.M., M.D.,
Resident Physician to the Boston Floating Hospital.

My topic is not the abstract one suggested in the circular of notice, hospitals for children, its advantages, disadvantages, etc., valuable as such a discussion might be. But I am to try to tell you what hospitals for children are available for men in the Norfolk district and as much about them as the limits of a ten minutes paper will allow. I know that there are men present who will know more about individual institutions than I do. If I am incorrect in any of my statements, or if I omit essential facts, will not those men kindly add their criticism when the time for the open discussion of the evening comes?

We all of us have occasion sometimes to send children to a hospital. At certain seasons or for some diseases difficulties arise because of the limited beds available. I shall have fulfilled my duty to-night, if I shall have broadened your field of vision along this line. For I certainly have added a great deal to my own information in preparing this paper.

From local boards of health and physicians I find that of the towns in our district, Brookline, Milton, Sharon and Franklin alone have hospitals to which children may be admitted.

The Brookline Contagious Hospital for diphtheria, scarlet fever, and measles has 100 beds. Its location, not far from the Country Club, is an advantage from the point of view of isolation, a disadvantage from the point of view of accessibility. Patients are expected to pay $15.00 per week, but if unable to do so, the burden will be borne by the town for its own residents.

Milton sends its contagious cases to Brookline and pays that town for their care. There is, however, in Milton a hospital of 10 beds free to residents of Milton who cannot afford to pay, to which children as well as adults may be admitted.

Franklin has a contagious hospital of 6 beds, not free.

Children have been occasionally admitted to the Sharon Sanatorium for tuberculosis, but aside from that no provision is made by that town for the hospital care of sick children.

Wellesley sends its needy patients, especially the contagious cases, to Newton Hospital and pays the bill there.

The Wellesley Convalescent Home for children is connected with the Boston Children's Hospital, and patients are admitted almost exclusively from that institution.

Dedham cares for its sick poor in their homes, as doubtless the other towns in the district do, but adds a nurse when necessary, through the aid of its Emergency Nurses Association of Dedham.

When we turn to those portions of the Norfolk District which lie within the bounds of Boston, we find a great number of institutions and organizations whose duty in whole or in part is to care for needy children. I received reports from about 50 and letters from most of them and from several others who had no printed report to send.

First is our great City Hospital, second to none. Most of the children there are in the South Department, where are 264 beds for diphtheria, scarlet fever and measles. None too many, for from the time the department was opened up to Nov. 13, 1906, 818 patients with measles were rejected for lack of room. Pertussis, varicella and mumps are not received here when they have not also scarlet fever or diphtheria. Our contagious hospital is a splendid one and has a great expert at its head, but he needs more room. There are, besides, in the City Hospital, Ward O for surgical cases of children with 14 beds for boys and 8 for girls and in Ward L a room for medical cases containing 8 cribs and two bassinets, besides three cribs in other rooms if necessary,— *i.e.*, 35 of the 615 beds in the main hospital may be used for children; surely not an unduly large proportion! But they are there and if you remember that, you *may* secure one of them for a very sick neglected child left on your hands.

The Massachusetts General Hospital has one ward of 18 beds for children. Emergencies are admitted at once; other cases must await a regular appointment of from one to three weeks. No contagious or incurable cases are admitted except some of the latter may come for temporary relief. Specify in your letter of recommendation if a free bed is needed. The regular charge is $10.50 per week. Apply when possible between 9 A.M. and 1 P.M., or 2 and 3 P.M.

The Children's Hospital, on Huntington Avenue, has 51 surgical and 30 medical beds. Admission is secured generally through the out-patient department, but emergency cases apply by telephone or with note from a physician to the superintendent. A charge of $7.00 per week is made for children not residents within the limits of Boston — these latter are cared for without charge.

The Infants' Hospital, at 37 Blossom Street, has 23 beds. Emergency cases are admitted at any time when there is a bed, but all others are referred to the admitting physician who is there daily, except Sunday, from 9 to 11 A.M. Charges made according to ability to pay, from as high as $10.00 to $12.00 per week to as low as 50 cents per week, or no charge at all.

The Carney Hospital, in South Boston, has no regular ward for children, but does occasionally admit them. Usually they come in through the out-patient department, but they may be brought with a note from a physician to the superintendent, on Tuesday and Friday afternoons from 2 to 4 P.M. A charge of $7.00 per week is made but is modified to meet the financial condition of the family.

The New England Hospital for Women and Children has 12 beds for children. Application is made to the superintendent from 11 A.M. to 1 P.M. daily with a note from the attending physician. $3.00 per week is charged when patients can pay. A private room for a child can be secured there for $10.00 per week. The hospital is on Dimock

* Read before the Norfolk District Medical Society, Dec. 18, 1906.

Street, Roxbury. Its staff are, as you know, all women.

The New England Baptist Hospital, on Parker Hill, Roxbury, while it has no beds set apart for children, occasionally takes one, especially if the mother comes with the child. If as much as $12.00 is paid to the hospital each week, the patient may be under the care of his own family physician. The airy, quiet location is excellent.

The new hospital of the House of the Good Samaritan, located on Francis Street, near the new Harvard Medical School, has two wards of 12 beds for orthopedic surgical cases. Application is made to the superintendent for admission. No charge is made.

The Faulkner Hospital, in Jamaica Plain, has about 30 beds,of which some, no definite number, may be used for children. Application is made to the superintendent by the physician. Children are welcome. If possible they pay from $10.50 to $14.00 per week for their care and treatment. For the latter sum any one of you may have a patient there in the open ward. Private rooms of course cost more. There are 6 free beds.

Three institutions are open in the summer only: the Boston Floating Hospital has now one hundred beds, besides the chance for a hundred more to come by day and spend the nights at home. All diseases except the children's contagious cases are welcome. Specially do we desire to have, in our open ward of 16 beds, tuberculous cases. So if you have any such next July, send them down early in the month before we are pushed by the infectious cases. We will keep them as long as the season lasts and hope to do much good thereby. No case is refused so long as there is a bed, but it helps us in the proper care to have a note from the doctor who has had the case. Come down yourselves and see the new boat, at the North End Park Pier, before 9 A.M. or after 4.30 P.M.; or, if you can, make a trip with us. You will have a cordial welcome and will, I think, find much to interest you.

The Burrage Hospital, on Bumkin Island, near Nantasket Point, maintained each summer by Mr. A. C. Burrage, is a most beautiful hospital. More than 100 children can have the benefits of fresh air, sunlight and good food, with medical supervision, and treatment when necessary. Most of them are cripples. A few more acute cases are taken. Applications are made at the wharf by parents to a hospital officer. This last season certain of the Nantasket boats stopped there. This inaccessibility of the hospital is the objection of parents to it but is more imaginary than real for there is always telephone connection with the city. It ought to be crowded full every summer as it never has been. Members of our own district are on its visiting staff, so you may be sure patients you send there will be well cared for.

The Children's Island Sanitarium, in Salem Harbor, reached by boat from Marblehead, has 75 beds. It is open from May to October. Applications are made with physicians' certificates to 37 Blossom Street, between 3 and 4 P.M., Mondays and Thursdays in June, July and August, *i.e.*, when the Infants' Hospital is closed. Children must be over two years old and if boys, under ten. All sorts of cases are admitted except contagious. Many have tubercular joint and bone diseases, as at the Burrage Hospital, but the superintendent would welcome more of the acute cases. We send the children of wealthy parents away to the seashore in the hot summer months. Here are chances to do the same for the sick children of the poor. No charge is made at any of these three summer hospitals.

The Eye and Ear Infirmary on Charles Street has 150 beds. Patients are admitted on the recommendation of any reputable physician. They pay $6.00 per week, if able to do so, or a less amount if that sum is too large. Specially valuable is the building where the contagious cases like gonorrheal ophthalmia can be cared for and isolated. Here one-half hour treatment can be and is maintained for days at a time, the salvation of many an eye! Eye and ear cases are also admitted to the City Hospital and to the Carney Hospital.

The Perkins Institute for the Blind, in South Boston,the Kindergarten for the Blind, in Jamaica Plain, the Boston Nursery for Blind Babies, on Fort Avenue, Roxbury, the Sarah Fuller Home for little deaf children, the Industrial Home for crippled children, all furnish aid for certain classes of cases.

Two of the so-called asylums are really hospitals, *i.e.*, the Massachusetts Infant Asylum, Jamaica Plain, and St. Mary's Infant Asylum, in Dorchester.

The Massachusetts Infant Asylum has about 12 beds. Applications for admission are made on special blanks to be signed by the examining physician who in our district is Dr. E. C. Stowell. Special emphasis is laid upon the feeding of these infants by breast milk, as has been reported to this society by one of the visiting physicians, Dr. Francis P. Denny. Preference is given to the younger children, under eighteen months.

St. Mary's Infant Asylum, on Everett Avenue, Dorchester, has 100 beds. All ages up to four are admitted. Application is made to the superintendent in person. Cases are classified according to age and condition, in 12 wards. For the efficiency of the medical work in this institution, my associate, Dr. Robert M. Merrick, of this district, is largely responsible. The new building is an excellent one and the clinic well worth a visit from any of you who live near by, and are equal to the steep climb to the top of that hill. I know what its reputation was in days gone by, but those days are now long past. It is a hospital which Dorchester men can be proud of and can do much to aid. A charge of $2.00 or less per week is made for those who can afford to pay, but nearly all are free patients.

The Waltham Baby Hospital and the Newton Hospital are neither of them within the limits of this district, or of Boston, but both receive children. The Waltham Baby Hospital has 16 beds, admits only babies under two years old and charges $1.00 per day when parents can pay it.

This does not meet the whole expense, by any means, which averages about $10.00 per week per baby.

The Newton Hospital, to which, as I have stated, Wellesley sends her contagious cases, has about 75 beds. About half the patients pay their way. The free beds are for Newton patients. Its chief value to our members therefore is for cases of contagious diseases who can pay. Doubtless similar arrangements can be made with the Brookline authorities, as Milton does.

I received also numerous reports from homes to which we may recommend patients. But as nearly all insist upon the good health of their applicants they cannot properly be considered as hospitals. There are two exceptions: Massachusetts Infant Asylum and St. Mary's Infant Asylum, as noted before.

There ought to be a diet kitchen in this part of the city. Formerly there was one on Ruggles Street, but this has been discontinued. The only place of which I can learn where one may secure needed supplies for a sick child is the North End Diet Kitchen on Common Street, Boston. Perhaps some of you can add to this. In the summer time the milk fund and Whiting's Distributing Centers help a great deal.

Finally, mention should be made of a large number of philanthropic societies which are ready to take up any case we may refer to them and to locate it in the institution most suitable or most available. Among these are the Society of St. Vincent de Paul, Massachusetts Society for Prevention of Cruelty to Children, Children's Aid Society, Barnard Memorial Society for helping Destitute Mothers and Infants, and lastly, in Boston and in each town, are the Overseers of the Poor.

I must apologize for the bareness of this outline. Time forbids more details or the consideration of other institutions.

In conclusion let me say that the replies I received to my inquiries always evinced the greatest willingness, even anxiety, to render help to the child for whose sake they supposed I was inquiring. They will help you in this same way. But remember, sometimes the beds *are* all full. Then help that admitting physician, *if you can*, by trying one of the other institutions which does similar work.

Clinical Department.

DIAGNOSIS OF DILATATION OF THE DUODENUM; A CLINICAL NOTE.

BY HENRY A. CHRISTIAN, M.D., BOSTON,
Instructor in the Theory and Practice of Physic, Harvard University, formerly Assistant Visiting Physician at the Long Island Hospital, Boston.

(From the Service of Dr. J. J. Minot, Long Island Hospital).

During the past year or two considerable interest has been aroused in the subject of dilatation of the duodenum by the observations of surgeons in their operations on the stomach, duodenum and gall bladder. Oehsner [1] has called attention to the presence of a duodenal sphincter and its possible action. Zade,[2] Finney [3] and others have pointed out that dilatation may result from obstruction due to the traction of the root of the mesentery over the lower end of the duodenum in conditions of enteroptosis. The possibility of duodenal atony associated with gastric atony and pyloric relaxation may be assumed as another factor in etiology. However, the case which I here report is of interest rather from the point of view of diagnosis, since the case was observed before much attention had been directed to this subject, and consequently no very special observations as to a possible cause for the condition were made, either at operation or autopsy.

P. H. was first admitted to the Long Island Hospital, Dec. 31, 1903, complaining of pain in the stomach after eating, occasional vomiting, and constipation. At that time he was seventy years of age, in a good condition of nutrition. His peripheral arteries were moderately thickened and tortuous. His abdomen was flaccid, not tender. No tumor masses could be made out. Pressure on the epigastrium and left hypochondrium caused eructations of gas. Gastric lavage was instituted, and with cathartics the patient's condition improved. In one month he gained ten pounds in weight. Before discharge, Feb. 1, 1904, inflation of the stomach showed the lower border to be 3 cm. below the umbilicus.

Patient remained well until about June 1, 1904, when the symptoms recurred. He was readmitted to the hospital July 18, 1904, in a somewhat feeble condition. He remained until the last of August. During this stay he developed an abscess of the buttock, which was incised under ether anesthesia. Sept. 17, 1904, he was again admitted, suffering from a contusion of the shoulder, received from a fall in the street. At this time he again complained of pain and distress in the epigastrium, relieved by vomiting. This gradually improved, and toward the end of October he was discharged from the hospital to the pauper institution, where he remained until March 23, 1905, when he was readmitted to the hospital.

At this time he was complaining again of constipation, distress in the stomach, gaseous eructations, and vomiting of food and mucus. I saw him on the day of admission and found a well nourished old man, with peripheral arteriosclerosis but otherwise in fair condition. An attempt to inflate his stomach by means of a divided Seidlitz powder was unsuccessful. The following day a stomach tube was passed and 115 ounces of water was put in. Of this only 48 ounces could be recovered. On April 11, 1905, I again saw the patient, and made the following note: No masses can be felt in the abdomen. With the patient sitting up, the percussion outline of the lower border of stomach tympany lies 13 cm. below the costal margin in the left mamillary line, 2 cm. below the umbilicus and reaches the right costal margin at a point 6 cm. to right of median line. Further to the right there is a tympany whose lower border cannot be sharply demarcated. By means of the stomach tube 98 ounces of water were introduced, and the lower border of the tympany was raised 2 cm. on the left and the area of tympany disappeared on the right. Sixty-seven ounces were removed, all that could be obtained.

[1] Ann. of Surg., 1906, xliii, 80, and Am. Jour. of Med. Sc., 1906, cxxxii, 1.
[2] Beiträge z. klin. Chir., 1905, xlvi, 388.
[3] Ann. of Surg., 1906, xliii, 870.

The lower border of tympany was now 17 cm. below costal margin on left, 6 c.m. below the xiphoid and had disappeared beneath costal margin on right as previously described. The tympany on the right did not reappear. Inflation with air lowered the line of tympany 4½ cm. The patient was placed on his back, but no more fluid could be expressed. Inflation in this position showed lower border of stomach visible at umbilicus and extending up to costal margin on both sides well outside of mamillary lines.

From these clinical facts a probable diagnosis of hour-glass stomach or dilated duodenum and stomach with pyloric relaxation was made. Dr. Cunningham saw the patient, and determined to make a gastro-enterostomy. On April 21, 1905, this operation was done. At that time the stomach was seen to be enormously dilated, with no obstruction at the pylorus. The patient stood the operation poorly, and without completely regaining consciousness, died the next evening.

An autopsy was made several days later by Dr. Magrath, from whose protocol the following description of the gastro-intestinal tract is taken:

Gastro-intestinal tract: the mesentery of the transverse colon upon its posterior aspect shows an opening 5 cm. in diameter, through which there is union by sutures between the jejunum at a point 5 cm. from its origin, and the posterior wall of the stomach 2 cm. above the greater curvature and 8 cm. from the pylorus; the peritoneum adjoining is a little injected and roughened, otherwise natural. Stomach: length 31, cm. depth at cardia 16 cm.; upon section, it contains a small amount of brown to black fluid material; the mucous membrane is smooth, and shows extensive post-mortem changes; at a point as above noted, the posterior wall near the greater curvature shows an opening 1.5 x 3 cm. communicating with a segment of the jejunum; the pylorus is 9.5 cm. in circumference, and represented by a well-marked fold. The duodenum at its origin is 11.5 cm., at a point midway between the pylorus and the papilla 12 cm., at the beginning of the third portion 11 cm. in circumference; the mucous membrane shows post-mortem changes, but is otherwise negative; at a point 6 cm. from its origin the jejunum is united with the stomach as above noted, and upon section, at this point presents an oval opening communicating with the stomach; this portion of the intestine contains a small amount of dark-brown semi-fluid material; the ileum and colon, a moderate amount of pale brown, homogeneous material.

The anatomical diagnoses were:

Operation wound of the abdomen; chronic adhesive pericarditis; hypertrophy and dilatation of the heart; edema and congestion of the lungs; anthracosis of the lungs; gastro-jejunal anastomosis; dilatation of the stomach and duodenum; fatty infiltration of the liver; chronic nephritis; cyst of the kidney; enlargement of the prostate; hypertrophy and dilatation of the bladder; general arteriosclerosis.

The point which I wish to emphasize in this case is the possibility of determining by physical examination of the abdomen and the use of the stomach tube an anatomical condition in which there exist two pouches, so connected by a patulous opening that both can be filled with water, but the water can be siphoned back but from one. This condition would be present in both an hour-glass stomach and duodenal dilatation with pyloric relaxation. In the latter condition the second pouch would be well to the right side, as in the case here reported. This is only a single observation, but may serve in the hands of others as an aid in diagnosing such conditions.

ABDOMINAL TUMOR WEIGHING EIGHTY-THREE POUNDS.

BY F. W. JOHNSON, M.D. BOSTON.
Visiting Gynecologist, Carney and St. Elizabeth's Hospitals.

THERE was in this case a fibroid weighing 14½ pounds. The sac of the ovarian cystoma weighed 28½ pounds, and the fluid in the sac weighed 40 pounds.

The day on which the patient left the hospital she weighed 92½ pounds. During the month following the operation she certainly gained more than ten pounds.

A. L., single, 59 years of age, entered the hospital, Sept. 29, 1904. Menstruation began at 14 years of age and was regular up to eight years ago. During these eight years menstruation had been irregular, occurring both before and over the four weeks. Once went one year, but even up to the time of entering the hospital there has been at times a bloody discharge.

Twenty years ago she noticed enlargement of the abdomen. Dyspnea, for the past year, easily tired, marked increase in size of abdomen. Has had a dry cough for the last six months.

Heart. — Regular, rapid. Area not made out.

Lungs. — Fine moist râles at bases behind. Diminished respiratory murmur over lower part of each lung.

Liver. — Upper border at nipple-line; sixth rib at axillary line; lower border not made out.

Abdomen. — Greatly distended; small umbilical hernia. Dull everywhere on percussion. Lower part of thorax bulging; intercostal spaces markedly retracted. Ensiform cartilage was pushed out almost at right angles to the body. There was marked edema of buttocks, thighs and legs.

For six months she had been practically bed-ridden. It was necessary to support the tumor to prevent its rolling off the table and dragging the patient with it. She nearly died before enough ether could be given so we could open the abdomen, tap the cyst and thus give her room to breathe.

Remembering Dr. J. C. Warren's advice, great care was taken not to empty the cyst too rapidly. Just as soon as the lungs had room to expand, the fluid was drawn off very slowly. A complete hysterectomy was done. She made a good recovery, and was discharged one month after operation.

Feb. 24, 1907. She weighs 160 pounds, and for a long time has done her own house work. She walks to and from the post-office which is one half mile from her home.

Medical Progress.

HYGIENE.

BY CHARLES HARRINGTON, M.D., BOSTON.

TYPHOID BACILLI IN WATER, FOOD, ETC.

How long typhoid bacilli will live in water has been the subject of much study, the results of which have been far from being in agreement. The character of the water, the nature and amount of the organic matter present, the number of bacteria of other kinds present and their nature, the temperature, the conditions as to light, the association of higher forms of vegetable life and various other factors all seem to be of more or less consequence. Important work reported by Wheeler[1] proves that under certain conditions not only can these organisms live in water but they

may even multiply to a considerable extent. This occurred in well water, containing considerable organic matter, kept at room temperature and in the dark. It is commonly believed that the saprophytic bacteria are hostile to the typhoid bacillus, but Wheeler showed that with one species, at least, it grows without difficulty.

The detection of the typhoid bacillus in the water of a suspected source has been reported by Matthes and Neumann [3] and in that of two suspected wells by von Drigalski,[3] who, in the case of one, obtained confirmatory proof by agglutination and Pfeiffer's test, though in the other he was unable to do so, failing to get the organism in pure culture.

Dr. W. Rullmann,[4] six months after planting typhoid bacilli in sterile soil, river sand, sifted humus and organic filth, found them in abundance; a year later but few were demonstrable in the humus, none in the sterile soil and sand, but many in the more filthy medium.

The effect of tea on typhoid bacilli is recorded by Dr. J. G. McNaught,[5] who found that four hours' contact with the infusion greatly diminishes their number and that after twenty hours' contact in the cold tea, they cannot be detected. He points out the desirability of substituting cold tea for water in soldiers' canteens while in the field, especially where typhoid fever is known to exist.

While milk has often been proved to be the vehicle for the exciting cause of typhoid fever, instances are few in which the bacilli themselves have been detected therein. D. Konradi [6] has reported an outbreak (120 cases) of the disease, in the course of which suspicion pointed to a bakery where many of the victims obtained their milk. The specific organism was found in 2 of 33 specimens of milk examined, and investigation showed that the son of the producer had ambulatory typhoid and that he milked the cows and handled the milk. The genuineness of the cultures obtained was confirmed by agglutination and by Pfeiffer's test.

CONTACT INFECTION AND TYPHOID CARRIERS.

It is asserted by Kutscher [1] that in southwestern Germany, direct contact is a more important factor in the spread of typhoid fever than polluted water, and that about 4% of typhoid patients become chronic carriers of the specific bacilli, which they excrete in both urine and feces, sometimes for long periods. Doerr,[8] for example, cites cases reported by Drober and Hunner, in which the bacilli were isolated from the gall bladder seventeen and twenty years after recovery, and Lentz [9] asserts that if after ten weeks from convalescence the excretion of the bacilli has not ceased, it will most likely continue permanently and uninteruptedly, in spite of medication. He cites a number of cases in which after ten, thirty and even forty-two years after recovery, the excretion continued. Levy and Kayser [10] report that in the autumn of 1905 a number of cases of typhoid fever occurred in an insane asylum, in which two years previously an inmate had had the disease and had recovered. On the appearance of these later cases, this person was examined and was found to be excreting the bacilli in her feces. Further examinations were made at intervals of several weeks, and the bacilli were found ten times. In October, 1906, she died of a typhoid bacillary septicemia, due to auto-infection from the gall bladder; and on autopsy the bacilli were isolated from the spleen, liver, bile, wall of the gall bladder and from the interior of a large gallstone.

A somewhat similar case is reported by Nieter and Liefmann,[11] also from an insane asylum in which the disease had been endemic for many months. A patient dead of chronic dysentery was examined, and typhoid bacilli were found in the intestines and in pure culture in the gall bladder, in which were gallstones. Among 250 inmates were found 7 typhoid carriers.

Klinger [12] found among 1,700 persons, 23 typhoid carriers, ranging in age from eighteen months to sixty years, 11 of whom had no typhoid history. Of 842 convalescents from the disease, 63, or 13.1%, were found to be excreting the bacilli, and 8 were still doing so six weeks after recovery.

Kayser,[13] tracing outbreaks to their sources, found a boy of twelve years, a member of a milkman's family, to be a chronic carrier and the probable source of infection in a number of cases. Another outbreak in which 17 persons were seized (2 deaths) was traced to a woman who had no typhoid history but was excreting the specific bacilli. She was employed in the dairy from which the persons seized had obtained their milk. Of 260 cases of typhoid fever investigated, 60 were traced to infected milk. Among the 60 victims were 30 maids and kitchen girls, 12 bakers, and 44 persons engaged more or less in kitchen work. In all, 28 cases were traced directly to apparently healthy typhoid carriers.

Minelli [14] examined 250 prisoners who had not been in contact with typhoid cases, and found but one who had the specific organism constantly in the feces. The agglutinative test was positive.

Etienne and Thiry [15] report the case of a man, sixty-four years of age, who, after four years in a hospital, under treatment for tabes and hemiplegia, had two attacks of jaundice, and on examination was found to be excreting typhoid bacilli in the feces.

A series of 26 cases of the disease in fifteen families of a village in Lorraine is described by Seige,[16] who states that diligent investigation by the district physician, the village authorities and the Bacteriological Institute of Saarlouis placed the responsibility upon a woman who was a chronic typhoid carrier.

An interesting case of infection from direct contact is reported by Dr. H. Mackenzie and Mr. W. H. Battle.[17] More than two years after a severe attack of typhoid fever, a man had an attack of femoral osteomyelitis, caused by *B. typhosus*. After operation the patient was discharged, but some time afterward a sinus formed, the purulent discharge from which contained

typhoid bacilli. The patient's wife had not been in contact with any other case, but frequently removed and burned the dressings. After a time she fell sick with typhoid fever, and died.

In a letter to the writer, under date of April 3, 1907, in response to a request for information concerning a woman described in the press as a "typhoid factory" and held under detention by the Department of Health of the City of New York, Dr. Walter Bensel says: "The woman of whom you write has given a history of a probable mild attack of typhoid fever about six years ago. Since that time there have been undoubtedly twenty-eight cases of typhoid fever in the families in which she worked. The number of cases occurring in a family within a few weeks of her advent varied from one or two up to six out of seven members. The evidence seemed so strong that she was a carrier of typhoid fever that she was removed to Reception Hospital by force. Examination of her feces and urine were made, and the typhoid bacilli found in her feces confirmed positively our suspicions with regard to the possibility of her conveying typhoid fever."

TYPHOID FEVER AND SHELLFISH.

At a recent meeting of the Académie de Médecine, Prof. A. Netter[18] stated that he had collected 125 cases of sickness, occurring in less than four months in twelve towns in different parts of France, all having in common that the patients had eaten oysters from Cette. The cases occurred in 37 families. The majority of patients had gastro-intestinal symptoms, characterized especially by colic and diarrhea, with or without vomiting. "The incubation period was generally at least twenty-four hours, but in 22 cases it was forty-eight hours or more. In some, the stools became very frequent; there was somnolence and a marked adynamic condition, and especially among children, profuse perspirations with a tendency to syncope occurred. In several cases there was epistaxis."

There were 33 cases of typhoid fever, mostly of very severe type, and 7, or 21.1%, resulted fatally. There was no relation between the number eaten and the severity of the symptoms; in 5 fatal cases the numbers eaten were respectively 3, 4, 9, 10 and 24. Wih rare exceptions, all who partook of the oysters became ill, while those members of the invaded families who did not eat of them escaped.

The Cette oysters are stored in canals which receive the sewage of the town. The yearly output is about 61,000 kilos.

An outbreak of typhoid fever due to polluted clams from flats near an outfall sewer is reported by J. F. Beale.[19] Seven persons ate clams which were said to have been thoroughly cleaned and boiled; four escaped with diarrhea and vomiting, but three had typical typhoid. Clams obtained from the same source were found to be grossly polluted with sewage bacteria which could be recovered alive from the tissues of the clams even after fifteen minutes' boiling. This result is in agreement with the findings of Mr. H. W. Clark,[20] whose tests with clams showed that one cannot be sure of sterility in all cases after five minutes' boiling, fifteen minutes' steaming, or by ordinary frying. The same was found to be true also of oysters, which, if cooked for more than five minutes are rendered unsuitable for eating, except that by the method followed in the preparation of "escalloped" oysters sterility may be secured after fifteen minutes' baking, without serious damage to texture and palatability.

According to a note in *Medical Record* (Nov. 10, 1906), Wesleyan University, Middletown, Conn., has had a second outbreak of typhoid fever, traced to polluted oysters consumed at fraternity banquets on Oct. 12, 1906.

DISCHARGE FROM THE EAR AS A PROBABLE FACTOR IN THE SPREAD OF DIPHTHERIA.

Dr. J. Biernacki and C. Montague Heanley[21] call attention to the importance of the discharges from the ears as a factor in the spread of diphtheria, it being well known that school children often have ear discharge after diphtheria and that this may contain the specific bacilli. These were found by them in 16 of 19 cases of ear discharge, and in a majority of the positive cases hundreds of bacilli were observed in a single field. The stage in which this condition obtains was found to last sometimes several weeks, so that the output of the bacteria must have been enormous. The bacilli were found as late as ninety-one days from the onset and on the sixtieth day of the discharge, and in scrapings from the meatus a week after the discharge had ceased and syringing had been stopped as unnecessary. In one case the interval from the onset to the appearance of the discharge exceeded forty days; in three cases, thirty days; in six cases, twenty days; in seven cases, ten days; in two cases, less than ten days.

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(*To be continued.*)

Book Reviews.

Aids to Medical Diagnosis. By ARTHUR WHITING, M.D., M.R.C.P., Physician to the Tottenham Hospital and Assistant Physician to the Mount Vernon Hospital for Consumption and Diseases of the Chest, etc. Pp. 152. New York: William Wood & Co. 1907.

This small volume of 152 pages, including an index, is one of the so-called Students' Aid Series. The book has the definite merit of not attempting too much, thereby avoiding the faults so often met with in volumes of this size, of unnecessary confusion of detail and the statement of mere facts. Dr. Whiting proceeds from the clinical standpoint and, from an eminently practical point of view, discusses disease as met with, for example, in an out-patient department. We do not hesitate to commend the book for what it purports to be, an aid to diagnosis.

Manual of Clinical Chemistry. By A. E. Austin, A. B., M.D., Professor of Medical Chemistry and Toxicology in the Medical Department of Tufts College, Boston. Pp. viii, 278. Boston: D. C. Heath & Co. 1907.

This is a 12mo volume of 278 pages arranged for the guidance of students in their study of medical chemistry. There are fifteen chapters, each one consisting of a brief and intelligent description of the subjects treated, and interspersed through the text are outlined numerous experiments which will serve to impress on the student the significance of the statements which precede.

This book is, however, not alone valuable to the student but to the practitioner of medicine as well, for each subject, which is so thoroughly treated, sums up with a brief statement of the clinical significance of the experimental facts; the work is, therefore, of an extremely practical character and well worth the careful study of the practicing physician as well as of the student.

The book deserves a wide circulation and general adoption by our medical schools as a textbook in this important branch of medicine.

No little credit is due the publishers whose reputation for book-making is well known. The type is excellent, the illustrations clear and well reproduced, and the binding good.

The Diseases of the Nose, Throat and Ear. By Charles Prevost Grayson, A.M., M.D., Clinical Professor of Laryngology in the Medical Department of the University of Pennsylvania, etc. Second edition, revised and enlarged. Philadelphia and New York: Lea Brothers & Co. 1906.

The first edition of this book was reviewed in the Journal of Dec. 18, 1902. This edition differs but little from the previous one. The chapter on the accessory sinuses has been rewritten; the first edition practically ignored the subject, in this one it is the best chapter in the book. A short, insufficient description of submucous resection has been added, also one on paraffin. There have also been added several good cuts from the recent work of Laurens, and a few less satisfactory colored plates. The opportunity of a new edition should have been taken to revise a larger number of subjects, such, for instance, as nasal polypus and "Mycosis Tonsillaris," which are not in line with the common views of to-day. The book is well made, and, as a whole, well written and attractive.

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REPORT OF THE MASSACHUSETTS GENERAL AND BOSTON CITY HOSPITALS.

The annual reports of the Massachusetts General and Boston City hospitals appear this year at practically the same time, and are interesting as illustrating the best types of a private institution with large public interests and a municipal institution essentially supported by the taxpayers.

The City Hospital report is the forty-second issued by the trustees of that institution, and serves to give one an increasing sense of the importance and the significance of this great hospital for the people of Boston. An excellent map of the buildings in elevation and also one of the hospital grounds and principal floor are this year published with the report. The cost of conducting the hospital is now in the neighborhood of half a million dollars, but it is gratifying to note that nearly seventy-five thousand dollars has been collected from patients of all classes able to pay something for their care. Other sums from the state of Massachusetts and various cities and towns and from other sources have raised the entire amount received from the patients, or for the care of patients, to the sum of something over ninety-nine thousand dollars, this being upwards of forty-one thousand dollars more than was received the previous year. The reason for this change is given in the facts that the laws regarding the settlement of non-residents have been more rigidly enforced, that there has been less resistance on the part of cities and towns in paying for patients treated at the South (contagious) Department, and finally that ward patients have shown a greater willingness to pay a moderate price rather than be classed as charity cases. Such a showing as this is certainly gratifying and

leads to the conclusion that at this institution a definite step has been taken toward the solution of the difficult question of medical charity. The growth of the Out-Patient Department at this hospital has been very striking. Ten years ago the number of patients treated was 17,740; this year the number was 38,650, an increase of more than 117%. Various reasons are given for this extraordinary increase, the chief of which, no doubt, are improved buildings and rooms for consultation and examination and a growing willingness on the part of patients to accept gratuitous medical advice. To this may be added an increasing confidence in the character of the treatment received at public institutions. The former skepticism has in a great measure subsided. The South Department shows its usual excellent record, with 1,900 patients treated during the year and but 131 deaths. Many original papers from the pathological laboratories demonstrate the continued activity of this department. Nearly ten thousand cultures were made also for diagnostic purposes. A complete Zeiss photomicrographic outfit of the latest design has been added to the laboratory equipment.

The Massachusetts General Hospital report, its ninety-third, also records a year of excellent progress. About forty-eight acres of land have been secured in Waverley, adjoining land now occupied by the McLean Hospital, a valuable accession to the property already owned by the institution in that town. A chapel at the McLean Hospital is now fully completed and in use, as is also the Codman House referred to as in process of construction in a previous report. At the General Hospital in Boston a significant addition to the buildings is a new ward to be devoted to the purpose of orthopedic surgery. The whole number of patients treated at the hospital was slightly less in 1906 than in 1905, and of this number considerably fewer free patients were treated, the number of paying patients in whole or in part being 2,225 out of a total of 5,075. Nearly 2,000 fewer out-patients were treated than in 1905, the whole number being 20,010, which may again indicate an awakening of the public conscience on the question of medical charity. A somewhat larger number of patients was treated in the accident room than in the preceding year. The average stay of patients in the hospital was twenty-one days, as against slightly over nineteen in 1905. This hospital is always the recipient of bequests from public-spirited citizens, the total amount for the year included in this report being over $165,000; of this amount $39,000 was given for the establishment of the orthopedic ward. Regarding the general support of the hospital, it will not be amiss to quote the following statement: "To correct a misapprehension which seems to exist to some degree, the trustees would say that the Massachusetts General Hospital is not supported by any national, state or city aid. Its funds for its support come entirely from those generous benefactors who recognize the high standard of charitable work in which it is engaged, and who have confidence in the ability and integrity of the men who are responsible for the administration and best usage of the trust which such generous benefactors put in them."

An event of importance during the year was the resignation of Dr. John W. Elliot, a visiting surgeon, which was accepted on Nov. 16. In December Dr. William A. Brooks was appointed to fill the vacancy caused by Dr. Elliot's resignation. Excellent work has been accomplished in the pathological laboratory under the general direction of Dr. J. H. Wright, and a valuable series of publications, based in whole or in part on observations made at the laboratory, have appeared during the year. Perhaps the most significant of these publications are those relating to the origin of the blood plates by Dr. Wright. The report of the superintendent of the McLean Hospital, Dr. George T. Tuttle, should be read with profit by those interested in the care and treatment of the insane and of the modern methods looking toward the care of this group of hospital patients.

The two reports taken together are admirably illustrative of the best development of hospital management on somewhat different lines.

THE NEW HAMPSHIRE STATE MEDICAL SOCIETY.

Next week the annual meeting of the New Hampshire State Medical Society will be held in Concord, and it is, therefore, fitting that we should take this opportunity to review the history of this pioneer organization. The New Hampshire Medical Society is one of the oldest associations of physicians in the country, being now in its one hundredth and sixteenth year. In 1791, when the new Constitution of the states had been firmly established, it was not unnatural that physicians should unite for purposes of mutual benefit. It was also at about this time, 1782, that the Massachusetts Medical Society came into formal existence. In those early days the necessity of combination for the best interests

of the profession was even more urgent in some respects than now. America had practically no means of publishing medical books, and relatively few medical traditions. It was, therefore, altogether natural that physicans, cut off as they were from the advantages of established medical organizations, should form a society of their own. This was done, and the society then inaugurated has continued with increasing usefulness to the profession and to the community from that time to this. The society consisted of nineteen charter members, men of ability and wide experience, the descendants of whom have carried on the traditions of their fathers, both in New Hampshire and in other states. There were at that time but three medical schools in the country,— Harvard in Boston, the University of Pennsylvania in Philadelphia and King's College in New York,— all very distant for the means of travel which prevailed in those days. It, therefore, was incumbent upon conscientious physicians to establish as far as possible some sort of standard for those entering upon the medical profession, and this, no doubt, was a further incentive toward the founding of the state medical society.

The first meeting was held May 4, 1791, at Exeter, with ten of the nineteen original members present. At this meeting thirteen new members were admitted. A month later another meeting was held at Concord with an attendance of eighteen, and from this time on the attempt was made to hold meetings with regularity, at least once a year, but often no quorum was secured. The society, however, grew; the meetings were in time more adequately attended, and there was no dissension among the members. It was, however, not until 1810 that there is record of formal literary exercises at the meetings. In 1811, for the first time, an orator was chosen, a position held in that year by Nathan Smith, one of the most distinguished physicians and surgeons which this country has ever produced. In 1838 a further step in progress was taken, when it was voted that the several state medical societies of the eastern states be requested to send a delegation to the New Hampshire society. It was furthermore voted by the New Hampshire society that an annual national convention be held, with representation from the various medical schools and medical societies of the United States. In 1843 a resolution was passed which savors somewhat of present day agitation. It reads as follows: "That the Society condemn most pointedly the use of secret remedies in the practice of medicine, and no fellow of this Association shall hold consultation with persons who notoriously make use of such remedies."

It is not possible in the space at our command to enter into detail regarding the many achievements of the members of this society during its long period of activity. These were fittingly rehearsed by many distinguished men at the centennial anniversary of the society, held in Concord in 1891. On that memorable occasion, much which is of special interest to the members of the society and which also has a distinct bearing upon the development of medicine at large in this country was discussed, both in the form of after-dinner speeches and in more set and formal papers. These were together published as "The Transactions of the New Hampshire Medical Society at the Centennial Anniversary held at Concord June 15, 16 and 17, 1891."

It is altogether natural that societies which enjoy the prestige of an historical past, such as that of the Massachusetts Medical Society, the New Hampshire Medical Society, the Rhode Island Medical Society and others, should feel a just pride in maintaining their autonomy and in guarding their individual rights and privileges as against any undue usurpation and control by a central authority. Few such organizations have had among their list of members the superiors of Nathan Smith,— the founder of three medical schools,— Amos Twitchell, Dixi Crosby and Reuben D. Mussey. As we have previously had occasion to point out, one of the most important problems in the future organization of the medical profession in the United States is the relation between the profession as a whole and of its component parts as represented by the various state societies. It is, in fact, the problem applied to medicine which has long been before our legislators in the purely political field. Upon its proper solution depends the ultimate welfare of the medical profession in this country.

THE EDUCATION OF DEFECTIVES.

Not many years ago education compelled by the state was looked upon as meddlesome and pernicious paternalism. To-day no one denies that compulsory education is a proper function of government. But from our public schools defective children — the crippled, the blind, the deaf and dumb, those of perverted mentality — have until recently been excluded. We have now, however, advanced to the point that we

recognize the state's duty to do all that it can for the abnormal child. We are recognizing that, at least in great cities, where so many immigrants with their families make their homes, our public schools have a function greater than merely elementary teaching; they are now well compared to great manufactories where the raw material — the children of these immigrants — are converted into intelligent, self-supporting and patriotic citizens. It is certainly best for our institutions if we can make the abnormal child intelligent and healthy; for he becomes a voter as well as the sanest individual in his community. And he oftentimes votes with greater regularity than the latter. We now wish that defective children may no longer become burdens upon themselves, their families and perhaps also the state. And this apart from humanitarian reasons which, of course, exist among us in fullest measure to-day.

In this city, in Chicago, Philadelphia and in New York " ungraded classes " have been established for defective children. In the latter city there are now some forty such classes, under the direction of a special inspector; and the work is being gradually extended. Teachers competent to undertake the peculiar task were given three months' leave of absence in order that they might thoroughly inform themselves by visiting state institutions, where mentally or physically defective children are cared for. Among the Jewish people in Manhattan there is a school for the blind and the deaf and dumb.

In these special schools there is, of course, no graded curriculum; there can be no set rules for the training of children who are exceptions to the normal type. In the old days no one made a scientific examination of a backward child; he simply spent most of his time on the dunce stool. Now, if he is slow in reading he is referred to a medical inspector for an examination in refraction. If he looks up stupidly when asked a question it is ascertained if his sense of hearing is defective. The causes of a weak body or of a sluggish mind are discovered and, if possible, removed. No tasks are given beyond the child's capacity; and those backward in certain subjects are put in a class by themselves, and specially coached. It is, by the way, a sad and rather a discouraging fact that the parents of many of these children look upon their offspring as so much capital; " and when one is born into the world blind, or crippled or mentally unable to fight the battles of life, the little creature is neglected, and sneered at, and deemed a hopeless burden." [1] It is not to be wondered at that such a child becomes timid, dull, sullen and, alas, often vicious.

MEDICAL NOTES.

Cæsar Borgia an Astigmatic? — Apropos a tragedy which Mr. Swinburne is reported to be preparing and which centers around the dark figure of Cæsar Borgia, it is suggested that Borgia's criminal tendencies may have been due to astigmatism.

Adulteration of Oleomargarine. — According to *Public Health*, January, 1907, page 257, a provision dealer in Hackney, England, was convicted of selling oleomargarine containing an excessive amount of water and 15% of mashed potatoes. The defendant explained that the product was intended for the German market and had been sent from Holland by mistake. A similar case, in which the amount of mashed potatoes present was 10%, is reported in *British Food Journal*, November, 1906.

Coffee without Caffeine. — An editorial in *The Lancet* of Dec. 8, 1906, draws attention to articles published by M. Gabriel Bertrand, who has analyzed the coffee beans of four species of *coffea* growing wild in Madagascar and the Great Comoro Island. Ordinary coffee beans (coffea Arabica) contain from 10 to 15 gm. of caffeine per kilo, but these contain none. Bertrand found 0.7 gm. per kilo in another species (coffea Mauretiana) grown in French Guinea. Mention is made also of a coffee which grows wild in Réunion, in the Indian Ocean, which Trillich found to be free from caffeine.

Free Diphtheria Antitoxin in Illinois. — The state of Illinois has appropriated $30,000 to be expended during the next two years by the State Board of Health for the purchase of diphtheria antitoxin for free distribution where needed outside of Chicago. Chicago already furnishes free antitoxin to its citizens. The State Board of Health of Massachusetts has for a number of years produced its own antitoxin for free distribution. The state of New York follows the course now adopted by the state of Illinois.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 8, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases:

[1] N. Y. Evening Post, Feb. 9, 1907.

Diphtheria 50, scarlatina 29, typhoid fever 6, measles 36, tuberculosis 39, smallpox 0.

The death-rate of the reported deaths for the week ending May 8, 1907, was 22.60.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, May 8, 1907, was 221, against 226 the corresponding week of last year, showing an decrease of 5 deaths and making the death-rate for the week 19.14. Of this number 114 were males and 107 were females; 213 were white and 8 colored; 127 were born in the United States, 85 in foreign countries and 9 unknown; 45 were of American parentage, 147 of foreign parentage and 29 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 43 cases and 2 deaths; scarlatina, 35 cases and 0 deaths; typhoid fever, 6 cases and 2 deaths; measles, 17 cases and 0 deaths; tuberculosis, 43 cases and 27 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 25, whooping cough 1, heart disease 27, bronchitis 2 and marasmus 3. There were 17 deaths from violent causes. The number of children who died under one year was 35; the number under five years 44. The number of persons who died over sixty years of age was 47. The deaths in public institutions were 82.

There were 10 cases and 4 deaths reported from cerebrospinal meningitis during the week.

New Hampshire State Tuberculosis Hospital. — A state sanatorium for consumptives is about to be established in New Hampshire. When the bill was introduced into the legislature two years ago, it carried a clause to the effect that if no sanatorium for consumptives were in the meantime established in the state, suitable to meet the public demand, a state sanatorium should be established May 1, 1907. Inasmuch as no private hospital has been established, the act of 1905 will now be carried out. The sum of fifty thousand dollars was originally appropriated; a board of five trustees, two of whom are to be physicians, will be appointed, a site selected, and a suitable building or buildings constructed.

NEW YORK.

Medical Unification Bill. — Contrary to the expectation, but much to the satisfaction of the regular profession throughout the state, both houses of the legislature have now passed the so-called Medical Unification bill, which provides for the establishment of a single examining board (instead of three, as at present) for the examination of applicants for medical license; and Governor Hughes will probably give it his signature. The satisfaction is not an unalloyed one, however, as since the original bill was introduced there has been tacked to it an amendment which recognizes osteopathy to a certain extent. According to the terms of this, it appears that persons now practicing osteopathy (the number of whom is stated to be about 350) are eligible to apply for licenses; but after 1910 each applicant must present the same evidence required of all others who desire to practice medicine in the state: that he has studied four years, including four full courses of not less than seven months each, in a college maintaining at the time a standard satisfactory to the regents of the University of the State of New York. Still, notwithstanding this amendment, the bill, viewed as a whole, is a distinct advance for the profession, containing as it does some important reforms, in addition to the creation of the single examining board. One of these is a long-needed definition of "medical practice" as that of a person "who holds himself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition." This, it is to be hoped, will be of distinct service in the suppression of quackery.

The Sale of Cocaine. — By a vote of 42 to 2 on April 30, the state senate rejected an amendment offered by the Senate Codes Committee to the Smith anti-cocaine bill, as it was passed by the assembly. This proposed amendment reduced the penalty for selling cocaine or any medicinal preparation containing it, making the offence a misdemeanor instead of a felony, as in the original bill.

Opening of the New Fordham Hospital. — The new Fordham Hospital, in the borough of the Bronx, one of the municipal series known as "Bellevue and Allied Hospitals," was opened for patients on April 30. This institution, like the Harlem Hospital, had outgrown its old quarters; and the commodious new buildings, while less extensive, are similar in architecture to those of the new Harlem Hospital.

Funds for Italian Hospital. — The Italian Benevolent Institute has mortgaged its property on East Houston Street, known as the Italian Hospital, in order to raise funds for the reconstruction of the present hospital building. The real estate and personal property of the Institute is estimated to be worth about $140,000, and the

Italian government has offered to contribute $60,000 for the endowment of the proposed new hospital.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. APRIL 20, 1907.

1. *STILES, C. W. *Protozoa as Factors in Disease.*
2. *CHASE, R. F. *Chronic Gastritis.*
3. *FISHER, I. *A Graphic Method in Practical Dietetics.*
4. HOWARD, C. P. *Myxedema.* (Continued.)
5. *VANDER HOOF, D. *Diagnosis and Treatment of Malarial Fever.*
6. BRENNEMANN, J. *Nutritional Disturbances in Infancy Due to Overfeeding.*
7. DAVIS, E. P. *Choice of Methods for Dilating the Gravid Uterus.*

1. Stiles's article deals mainly with the characteristics common to known protozoan diseases, and the lines of argument which, in other diseases whose causes are still obscure, establish a presumption that the cause is not bacterial but protozoan. The study of protozoa is still in its early stages, so that certain objects observed, such as the supposed small-pox parasites, cannot yet be differentiated from degeneration products. We must still depend upon argument by analogy, and other such aids, in our efforts to determine the nature of the infective agents of disease. Stiles lays much stress upon the fact that whereas diseases spread not necessarily by insects are, with few exceptions, bacterial, not; diseases which depend entirely upon insects for their dissemination are, without known exception, protozoan. This law is an argument in favor of the protozoan nature of yellow fever. That yellow fever is caused by protozoa is further probable from the fact that mosquitoes which have bitten yellow fever patients are capable of transmitting the disease only after an interval of about twelve days. This suggests a necessary cycle in the mosquito such as occurs with many protozoa, *e. g.*, the malaria parasite, but which has no analogy among bacteria.

2. Chase describes the disorder properly known as chronic gastritis. The term chronic gastritis is one which is often improperly used to include a variety of gastric disorders. In its true sense, however, it means a chronic inflammation of the gastric mucosa, involving organic changes. It is not a common disease, being met once in from 300 to 400 patients in a general medical clinic. It occurs mostly in men; the use of alcohol may be a factor in the etiology. The symptoms are not characteristic. There may be great loss of weight. The appetite may be diminished or increased. There may be pain relieved by food, as in hyperchlorhydria, but pain is the exception. In many cases there is distress after eating, eructation and regurgitation, or nausea and vomiting; constipation is the rule. The diagnosis rests upon objective findings in examination of gastric contents, especially the presence of mucus in excessive amounts, with somewhat diminished secretion. Chase observed in a majority of his patients hypermotility. The condition is a serious one since it may lead to atrophy. In most cases, however, with proper treatment symptoms should be relieved. The treatment, in addition to the correction of habits of life and hygiene, may be summarized as follows: (1) low proteid diet in three meals a day with one or two additional lunches; (2) douching the fasting stomach at least twice a week with sodium chloride and sodium bicarbonate solution (30 gr. of each to the pint of water at 100° F.) forcibly injected; (3) 10 or 15 gr. each of sodium chloride and sodium bicarbonate in a glass of warm water fifteen minutes before meals.

3. Fisher urges greater exactness in the prescription of diets, and proposes a system which he has devised to facilitate the calculation of the caloric value of a patient's diet, and of the relative proportions in it of the three food elements, proteids, carbohydrates and fats. To carry out the plan all foods are served in portions representing 100 calories each, calculated from a table which is given. The total caloric value is then simply the number of portions eaten multiplied by 100. The relative proportions of food elements in any portion given can be expressed by a point on a triangular chart which is described, the amount of each element being represented by the distance of this point from a side of the triangle. To do away with troublesome calculations Fisher places equal weights, at the appropriate place on a cardboard chart, for every portion eaten, and by a simple instrument determines the center of gravity of the chart with weights attached. The point at which the center of gravity lies represents the relative proportions of proteid carbohydrate and fat in the whole of the day's diet.

5. Vander Hoof lays emphasis upon the importance of accurate diagnosis in malarial fever. For this the blood examination is the one absolute proof of the presence of the parasite. A normal or decreased leukocyte count and a relative increase of large mononuclear cells are both to be expected, and if they are not found suspicion should be awakened that the disease is not malaria. The therapeutic test is next in importance; tertian and quartan malaria are invariably cured by quinine, and the estivo-autumnal form is usually overcome by it. Malaria is seldom mistaken for other conditions, only the estivo-autumnal form and pernicious malaria being occasionally thought to be typhoid fever, meningitis or yellow fever. The common error is to call cases malaria which are not malaria. The conditions most often wrongly thought to be malaria are: typhoid, early pulmonary tuberculosis, pyelitis, septicemia, pyemia, acute endocarditis, liver abscess and gallstones. For prophylaxis every malaria patient should be covered at night with a mosquito net. In treatment quinine must be given in a form easily absorbed, preferably in solution, and must be continued until every parasite is destroyed. It is well to open the bowels with calomel at the beginning so as to promote absorption of the quinine. Quinine is then given in 5-gr. doses every four hours for five days, then in 3-gr. doses three times a day for two and a half to three weeks. In pernicious malaria intramuscular or even intravenous injections are indicated. Rest in bed should be enforced until the temperature is steadily normal. For the post-malarial anemia Fowler's solution is indicated.

[F. W. P.]

SURGERY, GYNECOLOGY AND OBSTETRICS. APRIL, 1907.

1. *MURPHY, J. B. *Neurological Surgery.*
2. MARTIN, F. N. *Pyosalpinx and Other Chronic Pelvic Infections Treated by Laparotomy.*
3. WATKINS, T. J. *Non-Operative Treatment of Pelvic Infections.*
4. BYFORD, H. T. *Vaginal Drainage for Pelvic Pus.*
5. BESLEY, F. A. *Rupture of the Urinary Bladder.*
6. CRILE, G. *The Cobbler Stitch in Visceral Anastomosis.*
7. CONNELL, F. G. *Intestinal Suture, Perforating and Knotted in the Lumen.*
8. HOLLISTER, J. C. *Small Portable Microscope for Bedside Blood Counting.*
9. MORRIS, R. T. *Management of the Adipose Layer in Suturing.*

1. Murphy considers the neurilemma the key to the surgery of nerves. Nerves with a neurilemma are all capable of regeneration under proper surgical conditions, those without a neurilemma are incapable of regeneration. There is no regeneration of the white columns or gray matter of the cord after destruction or division. Hemorrhage, concussion and contusion of the cord without laceration may give the same picture as that of cord division. Surgical intervention in injuries to the cord should be resorted to only in cases where the cord is not completely divided except in the caudal zone. Immediate intervention will be of benefit when the cord is compressed above the cauda or compressed and divided in the cauda. If operation is at all indicated there is no reason for delay. In fractures of the spine without considerable displacement operation is contra-indicated. After division or crushing of the nerves of the caudal zone there is positive indication for end-to-end suture of the various fibers, the same as in peripheral nerves. In all non-malignant tumors of the cord laminectomy should be performed at the onset of paresis. After pressure necrosis of the cord

has taken place operation is worthless. All nerve reunion should be made by end-to-end contact or fixation, not by lateral. The results of nerve suture without infection and without the intervention of connective tissue can be made as uniformly successful as bone unions under similar conditions. Whenever there is tension on the line of union the nerve should be sutured to neighboring structures. When the distance is too great for end-to-end contact the gap should be filled with a fresh nerve trunk from animals, incased in an artery hardened in formalin. During repair the muscles should have massage, passive motion and mild galvanic stimulation.

[W. C. Q.]

Annals of Surgery.
April, 1907.

1. *Hartley, F., and Kenyon, J. H. *Experiences in Cerebral Surgery.*
2. Gray, F. D. *Possibilities and Limitations of Brain Surgery for Traumatism.*
3. *Bruce, H. A. *Value of Trephining as a Palliative Measure in Tumors of the Brain.*
4. *Rogers, J. *Operations for Neoplasms of the Tongue.*
5. Bartlett, W. *A Method of Using the Tongue in Supplying a Defect of the Cheek.*
6. Winslow, R. *Diseases of the Hyoid Bone.*
7. Leonard, C. L. *Signs and Symptoms in Urinary Lithiasis.*
8. *Walker, G. *Tuberculosis of the Bladder.*
9. Allis, O. H. *Circumcision.*

1. Shock and sepsis are two of the important factors to which the mortality in cranial surgery is due. Hartley and Kenyon describe in detail the various methods and instruments which they use to shorten the time of operation, to limit the amount of hemorrhage and to avoid drainage if possible. After much experience with various implements they now use a motor driven either by electricity or compressed air to which is attached either a burr drill, or a circular saw with a Doyen guard. Before operation, and after shaving, the scalp is measured according to the method of cerebral topography of Chipault, the lines being drawn with a fuchsin pencil or with tincture of iodine. The best form of bone flap is one which obtains its blood supply from the temporal or occipital arteries. The thinner portions of the calvarium serve as bases for the bone flap, the thicker parts being sawn. A tourniquet surrounding the head just above the ears is usually employed. Nineteen cases illustrating operative interference in various regions of the brain are given in detail. The article is profusely and admirably illustrated.

3. Bruce reports five cases of brain tumor in which operation was done. In three the relief of pressure thus obtained gave marked improvement of the visual disturbances. He maintains that it is inexcusable to allow a case of optic neuritis to go on to blindness. Trephining should always be done.

4. After discussing the procedures of various surgeons in attacking malignant disease of the tongue, Rogers concludes that the method which seems to have given the best results is that of Whitehead. This method excises the portion of the tongue involved and then makes a thorough dissection of the submaxillary and cervical regions. It is never wise to separate all the muscular attachments from the genial tubercles as pneumonia is an almost certain sequel from disturbance of swallowing. Preliminary tracheotomy should be avoided. Before operation patients should be habituated to the use of the stomach tube and should be subjected to a thorough course of tooth and mouth cleansing.

8. In an analysis of 447 cases of tuberculosis of the bladder Walker finds that but very few cases heal. A minority run a chronic course extending over a number of years, but in the majority the progress is more or less rapid, and the downward course is marked by few interruptions. The disease is practically never primary in the bladder itself, infection coming most often from the kidney or the epididymis. Four stages of the disease exist: (1) invasion and formation of tubercles, (2) superficial ulceration, (3) deeper infiltration and (4) widespread destruction. Frequency and pain on micturition, and hematuria are the most prominent symptoms. The diagnosis is never certain till the bacteria have been found and cultivated by guinea-pig inoculation. The average duration of symptoms was about three years. Cystoscopy should be employed, but always with the greatest care and cleanliness. The treatment can be summed up thus: "Remove when possible the focus of bladder infection and send the patient to a suitable climate where he can live out of doors and where he will receive the proper quantities of well selected food. Surgical and medical treatment other than this has played a pitiful rôle." Of the whole series of cases only 29 have been reported cured and some of these are doubtful.

[W. C. Q.]

The Lancet.
April 13, 1907.

1. Savage, G. H. *The Increase of Insanity.*
2. Handley, W. S. *The Pathology of Melanotic Growths in Relation to their Operative Treatment.*
3. Higgens, C. *Notes on One Hundred and Thirty Consecutive Extractions of Cataract without a Failure.*
4. Wernich, S. F. *The Successful Treatment of Tuberculosis and Leprosy by Means of an Albuminoid Metabolic Product, Chemically Altered, of a Bacillus Discovered at Boshof in 1898.* (Continued article.)
5. Colt, G. H. *Five Cases of Inguinal Bubo.*
6. Bolton, J. S. *The Treatment of Prostatic Congestion by Electrical Methods.*

British Medical Journal.
April 13, 1907.

1. *Hartmann, H. *The Surgical Forms of Ileo-cecal Tuberculosis.*
2. *Steward, F. J. *Clinical Remarks on the Treatment of Surgical Tuberculosis.*
3. *Riviere, C. *The Vaccine Treatment of Tuberculosis in Children.*
4. *Bosanquet, W. C., and French, R. E. *The Influence of Antituberculous Serum on the Opsonic Index.*
5. Turton, E. *The Relative Opsonic Power of the Mother's Blood Serum and Milk.*

1. Hartmann believes tuberculosis of the intestine, and especially of the cecum, amenable to operative interference is more frequent than is generally thought. Many conditions formerly considered inoperable cancer are now known to be operable tuberculosis. The cecum is the seat of this condition in probably 85% of the cases. There are two forms: (1) the entero-peritoneal type characterized by caseation, perforation, ulcers, extensive involvement of other parts, abscess formation; (2) the hyperplastic form, simulating neoplasms and generally limited to the cecum. The cecum seems greatly increased in size, with walls often 2 to 3 cm. in thickness. The cul-de-sac normally formed by the cecum is obliterated. Microscopically the most extensive lesion seen is a diffuse round cell infiltration. There is often little or no involvement of the lungs, this differing from other forms of abdominal tuberculosis. Symptoms are in two groups, those of appendicitis and those of intestinal obstruction. A tumor can often be felt. The hyperplastic form has a very insidious onset and is not characterized by signs of obstruction until late in the disease. There are often recurrent attacks of pain without entire relief of symptoms in the interval. The average duration of the disease is two and one half to three years. In differential diagnosis ordinary appendicitis can usually be ruled out; actinomycosis can sometimes cause similar conditions. The hyperplastic form is most frequently mistaken for malignant disease. Cancer, however, grows more rapidly, and the tumor is more nodular and does not preserve the form of the cecum. Tuberculin in diagnosis is of no value because of the probable existence of pulmonary tuberculosis. Operation, however, is indicated in either case. The treatment is *always* surgical. The author has collected 229 cases from the literature, of whom 46 died after operation.

2. Steward speaks on some points in the treatment of surgical tuberculosis in children. The preparation of the patient by complete rest in bed out of doors if possible and forced feeding is very necessary. He gives the details of operating on a tuberculous abscess due to a process in a bone. He closes the wound carefully, not believing in any

form of drainage. After operation absolute rest by fixation is important. He has used tuberculin as a therapeutic measure and believes it has been beneficial in every case.

3. Riviere gives the results of tuberculin treatment of various forms of tuberculosis in children. He concludes that in proper doses it is a most valuable remedy, and that in many apparently hopeless cases remarkably good results can be obtained. It cannot take the place of surgical measures, but should be used in conjunction with these. That tuberculin treatment should only be given by those who have made a special study of it. He describes his methods and the dosage, but unfortunately does not give the kind of tuberculin he uses, so one cannot judge as to the size of these doses. He states that tuberculin cannot be safely given in children without opsonic determination, which statement is open to discussion. He has had especially good results with cases of tuberculous glands, but has been disappointed with results obtained in joints.

4. Bosanquet and French give result of experiments on the effect of tuberculin treatment with Marmorek's serum given by rectum. Subcutaneous injections did not have much effect. As a result of these investigations on several advanced cases of tuberculosis (pulmonary), they conclude that Marmorek's serum will produce a rise in the tuberculo-opsonic index beginning after the third or fourth dose and lasting while the serum is continued. Although the number of cases is small, they feel convinced that this method of treatment is of value and should be further investigated. [J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, NO.13.
MARCH 26, 1907.

1. BALLNER, F., and REIBMAYR, H. *The Value of the Complement-Absorption Method for the Differentiation of Capsule Bacilli.*
2. *THALMANN, S. *The Early Treatment of Syphilis.*
3. SPAETH, F. *The Alexander-Adams Operation.*
4. *ACH, A. *Eye Palsies after Lumbar Anesthesia.*
5. *SCHWARTZ, G. *A Case of Mitral Stenosis with Profuse Hemoptysis and Sclerosis of the Pulmonary Artery.*
6. *NOEGGERATH, C. T. *A Case of Meningitis due to the Bacillus Coli Immobilis Capsulatus.*
7. WIDMER, C. *A Case of Cancer Cured by the Use of Sunlight, with Remarks.*

2. Thalmann reports the result of 24 cases of syphilis treated early, that is to say during the primary stage. The diagnosis was made in every case by the demonstration of spirochetes, and treatment was begun at once. One half received one or two injections of corrosive sublimate beneath the chancre; all received inunctions. In 8 patients there were no secondary symptoms, and the patients are regarded as probably cured. In those patients who showed a rash, this came on quite soon after the first series of inunctions, and the lesions were always larger and less numerous than is usual at this period. In a number of cases the secondary symptoms appeared in one place only, most often the tonsil, and soon disappeared after the renewal of the inunctions. The reasons that have been given for delaying treatment to the secondary stage are chiefly two: (1) that the diagnosis is not certain in the primary stage, and (2) because the use of mercury at this time sometimes seems to make the patient worse. The first argument no longer holds good now that we have in the demonstration of spirochetes a sure means of diagnosis. The reaction after the first applications of mercury, which occurs also in secondary stage, is manifested by fever and increase in the eruption, sometimes by iritis. These symptoms are due, according to Thalmann, to the fact that mercury kills the spirochetes; their endotoxins are set free and absorbed. By treating cases in the primary stage, the long period in which the body is a prey to the spirochetes and their toxins is avoided, and it is hoped to prevent those changes in the cells which lead to tabes and general paresis. The iodides act, according to Thalmann, by removing the inflammatory products of the spirochetes, but do not affect the organism itself. Mercury is therefore to be used in all stages of the disease, iodides in the later stages in conjunction with mercury or for a short period before the use of the latter. "The early treatment of syphilis is the only rational one."

4. Ach reports four cases of paralysis of the external rectus muscle following lumbar anesthesia, and discusses their pathogenesis. He believes that fluid injected into the spinal canal in the lumbar region is very slow to reach the base of the brain, and that in most cases of lumbar anesthesia the drug does not go so high, but is taken up by the nerves as they lie in the subdural space. If it reaches the base of the brain, it must remain for some time in the lymph reservoir in front of the pons, where the sixth nerve is directly exposed to its action. This explains why the abducens is usually the nerve to suffer. The paralysis came on within the first two weeks after operation and lasted from one to six weeks. Other symptoms were headache, pains in the back and insomnia. The prevention of such sequels lies in avoiding the use of stovain, in employing small doses in weak solution, and in rest in bed after the operation.

5. In Schwartz's case of mitral stenosis the interesting features were the profuse and fatal hemorrhages from the lungs and the intense arteriosclerosis of the pulmonary artery. No infarcts were present and there was no rupture of the artery, so that it is assumed that the hemorrhage was due to capillary oozing. Such cases of abundant hemoptysis due to passive congestion of the lung are rare and may readily be mistaken for phthisis.

6. Noeggerath adds one more to the large list of organisms that may cause meningitis. An infant eleven days old was taken with convulsions and other signs of meningitis, of which she died ten weeks later. The fluid obtained by puncture was always very scanty, cloudy, rich in fibrin, but very poor in cells. Large numbers of bacilli were present, which according to their cultural characteristics occupy a position midway between the bacillus lactis aërogenes and the colon bacillus. They were negative to Gram, non-motile and bore a broad capsule. They produced indol, and gas on sugar-agar but not on potato. The organism is identical with the bacillus coli immobilis capsulatus of Wilde. [W. T.]

BERLINER KLINISCHE WOCHENSCHRIFT, NO. 12.
MARCH 25, 1907.

1. HOFMEIER, M. *The Removal of the Placenta.*
2. *VENEMA and GRÜNBERG. *A Case of Abscess of the Liver containing Typhoid Bacilli.*
3. *BLASCHKO, A. *The Significance of the Spirocheta Pallida in Syphilis.*
4. *JACOBSON. *An Epidemic of Meat Poisoning in the East Part of Berlin.*
5. *EHRLICH, P. *Chemotherapeutic Studies on Trypanosomes.* (Concluded.)

2. Venema and Grünberg report a case of abscess of the liver following typhoid fever in which typhoid bacilli were obtained from the pus in pure culture; the patient recovered after operation. This makes the sixth case of typhoid abscess of the liver in which the organisms have been demonstrated. The abscess comes on usually during the convalescence from typhoid fever and is uniformly fatal unless operation is performed; with operation the mortality has been 33%.

3. Blaschko, in examining chancres for spirochetes, has found that the organisms may be absent in some sections or present only in a single lymph vessel, while they are very numerous in other sections. This is because the spirochetes are massed together in the center of the lesion and move away from it chiefly in the lymphatics.

4. Jacobson describes an epidemic of meat poisoning in Berlin in which 90 people were made sick and 2 died. Only those who ate the meat raw or slightly cooked were affected. The cause was found to be the bacillus paratyphi beta, which was recovered not only from the meat, but from the stools of the victims. The blood serum of the latter agglutinated the bacillus. The symptoms were those of acute gastro-enteritis and bore no resemblance to typhoid. The paratyphoid group seems to be the most frequent cause of meat poisoning, producing an acute inflammation of the gastro-intestinal tract without incubation period; it also may cause a disease closely resembling typhoid fever, with period of incubation. Possibly the mode of infection may account for these differences.

5. Ehrlich reports the results of long-continued researches on the action of dye-stuffs on animal parasites, especially trypanosomes. He states that a chemical

substance, if it is to destroy parasites in the blood, must have a greater affinity for the parasites than for the tissues of the host; otherwise the latter will be the one to suffer. A direct chemical union must take place, *e. g.*, studies have shown that the action differs with different species of animals and with different kinds of trypanosomes, so that the best drug must be ascertained for each species by thorough experimentation. Thus atoxyl, which has an effect comparable to that of quinine in malaria, when used against the trypanosome of dourine or that of man (T. gambiense) has little action on the trypanosome of nagana in infected mice. An acetyl derivative of atoxyl, however, acts promptly on the last-named trypanosomes in the case of mice, but is too poisonous to use on horses and guinea-pigs.

Three groups of substances have been found which have a trypanocidal action, viz.: (1) the benzidin group, including trypan-red and trypan-blue; (2) the basic triphenylmethan dye-stuffs, of which fuchsin and parafuchsin are the most important; and (3) the atoxyl group. Ehrlich's experiments have brought to light the interesting fact that by continued feeding of fuchsin or atoxyl to infected animals it is possible to produce a strain of trypanosomes that is resistant against the corresponding drug. These "drug-fast" strains retained this characteristic through many generations. The phenomenon is manifested towards other drugs belonging to the same group, but not to members of a different group, *i. e.*, the strain which has become resistant towards trypan-red is not affected by trypan-blue, while it is promptly destroyed by atoxyl or fuchsin. This has great practical importance, for it explains the failure of atoxyl in some cases of human sleeping-sickness; the protozoön has become "atoxyl-fast." In order to obtain the best results it will be necessary therefore to use a combination of substances belonging to different groups, and to destroy the trypanosomes in a short time, before such resistance can be established.

Immunity was found to be present after a single infection with trypanosomes, but of a very temporary character, lasting only about twenty days. This is in accord with the experience with malaria and some other protozoön diseases in which immunity is short-lived at first, and becomes permanent only after repeated infections.

[These researches are of great practical and theoretical importance and should be read in the original by those interested in the subject. — W. T.]

A Spirochete in Carcinoma of the Breast in Mice. Gaylord (*Jour. of Infec. Dis.*, April 10, 1907), in sixteen specimens from three different strains of transplanted mouse tumors examined by the Levaditi method, observed the presence of spirochetes most numerous at the infiltrating edge of the tumors. Since then he has found the same organisms in nine out of ten primary mouse tumors examined, and in the one exception the failure can be accounted for by faulty technique. Examination of all organs and subcutaneous tissues of five normal mice has failed to show any such organisms. The spirochetes were most numerous in the more virulent tumors and in the more actively growing portions. Attempts to stain them by various methods other than that of Levaditi all failed, but they could be found, although with some difficulty, in fresh specimens, in which they seemed to be actively motile. A brief review of the observations of other authors with regard to the occurrence of spirochetes in cancer is given, and the organism under discussion is described with illustrations. Calkins, in an article immediately following, further describes the organism. It is not regarded as proved that this organism bears any causal relation to mouse tumors, but its constant occurrence is considered suggestive. [F. W. P.]

Miscellany.

FLIES AND DISEASE.

The fly, and especially musca domestica (the common house-fly), will be much persecuted during the present year if the indications reported by our correspondents at Liverpool and Glasgow are to be considered as prophetic of action. In the former city a report is being prepared by Prof. Ronald Ross and Mr. R. Newstead as to the history of house-flies during the winter months with a view apparently of destroying them in the egg or in the larval stage, while at Glasgow (Govan) the council's bacteriologist has been making experiments by allowing flies to infect Petri dishes of agar-agar. The organisms which the flies brought were found to be those which are associated with sewage and decomposing organic material. There can be little doubt that infection of food stuffs by flies is one cause of summer diarrhea, although, as Dr. E. W. Hope, of Liverpool, pointed out, it is not the only cause. Many other of the diptera besides the musca domestica are noxious, such as the stomoxys, which can inflict a painful "bite." Instances are on record where this fly, or one of its congeners, has been the carrier of the infection of malignant pustule with fatal results, especially when the sufferer has been bitten on the lip, and some of our readers may remember the use made of this fact by Murger in his romance, "La Sabot Rouge." One of the most active enemies of the fly is the common wasp, and the wholesale destruction of these insects which is carried out in some places is likely to result in a plague of flies. Still, even in towns, where wasps are scarce, much may be done, to keep down the number of flies by careful attention to the removal of organic matter in ashpits and other places, a course recommended by the health committee of Liverpool. As a matter of fact, in the ordinary household there should never be any organic matter in the ashpit, and as a rule all household organic waste can be burned in the kitchen fire. — *Lancet.*

MASSACHUSETTS GENERAL HOSPITAL.

RESOLUTIONS BY THE VISITING STAFF ON THE RETIREMENT OF DR. H. H. A. BEACH.

At the annual meeting of the visiting staff, held April 25, 1907, the following resolutions were adopted unanimously:

In the retirement of Dr. Beach the Massachusetts General Hospital loses an able and faithful surgeon, whose efficient official record runs for nearly two generations.

Appointed to the hospital thirty-five years ago, and serving for many years as the junior of such distinguished men as Bigelow, Hodges and the elder Cabot, Dr. Beach can look back with pride on a long, honorable and useful career. A trained anatomist, a painstaking investigator, a dexterous and sound operator, he has always been recognized by his colleagues on the staff as the conservative and resourceful surgeon, whose ready sympathy, invariable courtesy and wise counsel were constantly and abundantly at their command. They extend to him their cordial wishes for a long continuance of his services to the community.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 27, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,671	457	Quincy	3	—
Chicago	678	226	Waltham	7	—
Philadelphia	—	—	Pittsfield	9	3
St. Louis	—	—	Gloucester	11	—
Baltimore	219	37	Brookline	9	2
Cleveland	—	—	North Adams	5	0
Buffalo	—	—	Chicopee	5	1
Pittsburg	—	—	Northampton	9	1
Cincinnati	—	—	Medford	6	1
Milwaukee	—	—	Beverly	3	1
Washington	—	—	Leominster	4	—
Providence	68	20	Hyde Park	3	2
Boston	257	63	Melrose	4	0
Worcester	65	17	Newburyport	—	—
Fall River	57	21	Woburn	3	—
Cambridge	25	6	Marlboro	4	0
Lowell	48	18	Westfield	7	—
Lynn	23	1	Peabody	—	—
New Bedford	28	7	Revere	4	2
Springfield	29	7	Attleboro	3	1
Lawrence	28	6	Clinton	2	1
Somerville	21	1	Adams	3	1
Holyoke	24	7	Gardner	—	—
Brockton	18	4	Milford	—	—
Malden	15	4	Watertown	7	3
Chelsea	10	4	Plymouth	—	—
Salem	16	3	Weymouth	4	2
Newton	3	1	Framingham	4	—
Haverhill	20	2	Southbridge	6	—
Fitchburg	14	—	Wakefield	—	—
Everett	3	1	Webster	—	—
Taunton	14	7			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 4, 1907.

A. H. ALLEN, assistant surgeon. Ordered to duty at Lajas, Cuba.

C. H. DELANCY, passed assistant surgeon. When discharged from treatment at the Naval Medical School Hospital, Washington, D. C., ordered to Navy Yard, Washington, D. C.

T. N. PHILLIPS, pharmacist. Detached from the Naval Hospital, New Fort Lyon, Colo., and ordered to the Naval Medical School Hospital, Washington, D. C., for treatment.

RESIGNATION.

DR. WILLIAM LAMBERT RICHARDSON, Dean of the Medical School and of the Faculty of Medicine of Harvard University, has resigned from this position. Dr. Richardson has been connected with the department of obstetrics of the Medical School since 1871, and has been dean since 1893. The resignation takes effect Sept. 1, 1907.

SOCIETY NOTICES.

MAINE MEDICAL ASSOCIATION. — Annual meeting. Change of dates. By vote of the censors the annual meeting of 1907 will be held in Lewiston, Wednesday, Thursday, Friday, June 12, 13, 14. WALTER E. TOBIE, *Secretary*, PORTLAND, ME.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY. — This society will meet Thursday, May 16, 1907, 7.30 P.M., at Hotel Nottingham, Huntington Ave., Boston. Section of Orthopedics. Dr. Jane K. Sabine, chairman. Paper: The Care of Flat-foot During and after Pregnancy, Dr. Sabine. Discussion by Alice M. Gray. Section of Rhinology and Laryngology. Dr. Margaret L. Noyes, chairman. Paper: Mouth Breathing. Etiology and treatment, Dr. Noyes. BLANCHE A. DENIG, M.D., *Secretary*.

RECENT DEATH.

DR. HENRY J. WOOD, of Utica, N. Y., died suddenly from cardiac disease in Chicago on April 29, while returning from his winter residence at Pasadena, Cal.

BOOKS AND PAMPHLETS RECEIVED.

Metabolism, Physiology and Pathology, with Its Applications to Practical Medicine. By Carl von Noorden. Anglo-American Issue under the editorship of I. Walker Hall. Chicago: W. T. Keener & Co. 1907.

The Common Bacterial Infections of the Digestive Tract and the Intoxications arising from Them. By C. A. Herter, M.D. New York: The Macmillan Company. 1907.

The Treatment of Skin Cancers. By W. S. Gotthelf, M.D. Third edition. Revised and enlarged. New York: International Journal of Surgery Co. 1907.

Transactions of the Thirty-seventh Annual Session of the Medical Society of Virginia held in Charlottesville, Va., Oct. 9–11, 1906.

The Treatment of Disease. A Manual of Practical Medicine. By Reynold Webb Wilcox, M.A., M.D., LL.D. Philadelphia: P. Blakiston's Son & Co. 1907.

Goiter, with Preliminary Report of Three Hundred Operations on the Thyroid. By C. H. Mayo, A.M., M.D. Reprint.

Talks to First Year Nurses. By Alfred T. Hawes, M.D. Illustrated. Boston: Whitcomb & Barrows. 1907.

Twenty-ninth Annual Report of the State Board of Health of the State of Connecticut for the Year 1906. New Haven, Conn. 1907.

The Procreation of Deviates. By William Lee Howard, M.D. Reprint.

Report of the Surgeon-General of Massachusetts. 1906.

Practical Physiological Chemistry. A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. By Philip B. Hawk, M.S., Ph.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Anæsthetics, Their Uses and Administration. By Dudley Wilmot Buxton, M.D., B.S. Fourth edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

The Miracle Worker. By Gerald Maxwell. Boston: John W. Luce & Co. 1907.

Die Behandlung der Angeborenen Hüftgelenksverrenkung. Von Dr. F. Calot, übersetzt von Dr. P. Ewald. Mit einem vorwort von Prof. Dr. Oscar Vulpius. Stuttgart: Ferdinand Enke. 1906.

Die Behandlung der Tuberkulösen Wirbelsäulenentzündung. Von Dr. F. Calot, übersetzt von Dr. P. Ewald. Mit einem vorwort von Prof. Dr. Oscar Vulpius. Stuttgart: Ferdinand Enke. 1907.

Transactions of the Massachusetts Medico-Legal Society. Vol. III. No. 7. 1906.

The German Pseudo Doctors. By Dr. G. L. Hagen Burger. Translated from Dr. Theodor Moomsen.

Civilization and Tuberculosis. By John B. Huber, A.M., M.D. Reprint.

Ingestion Tuberculosis. By John B. Huber, A.B., M.D. Reprint.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A.M., M.D., and Tracy C. Becker, A.B., LL.B., and others. Second edition. Vol. II. Illustrated. New York: William Wood & Co. 1907.

Lessons on Massage. By Margaret D. Palmer. Third edition. Illustrated. New York: William Wood & Co. 1907.

A Practitioner's Handbook of Materia Medica and Therapeutics. Based upon Established Physiological Actions and the Indications in Small Doses. To which is added Some Pharmaceutical Data and the Most Important Therapeutic Developments of Sectarian Medicine as Explained along Rational Lines. By Thos. S. Blair, M.D. Philadelphia: The Medical Council. 1907.

Clinical Lectures on Neurasthenia. By Thomas D. Savill, M.D., Lond. Third edition. New York: William Wood & Co. 1907.

Surgery of the Rectum. By Fred C. Wallis, B.A., M.D., B.C. Cantab., F.R.C.S. Illustrated. New York: William Wood & Co. 1907.

Tics and Their Treatment. By Henry Meige and E. Feindel. With a Preface by Professor Brissaud. Translated and edited, with a Critical Appendix, by S. A. K. Wilson, M.A., M.B., B.Sc. New York: William Wood & Co. 1907.

Gall-Stones and Diseases of the Bile-Ducts. By J. Bland-Sutton, F.R.C.S. Eng. Illustrated. New York: William Wood & Co. 1907.

Experiments on Animals. By Stephen Paget. With an introduction by Lord Lister. Third and revised edition. New York: William Wood & Co. 1907.

Wellcome's Photographic Exposure Record and Diary. 1907. London (Eng.), New York, Montreal, Sydney, Cape Town: Burroughs Wellcome & Co.

MAY 18 1907 LIBRARY.

Original Articles.

ON THE TREATMENT OF CHRONIC DISEASES OF THE HEART.*

BY PROF. THEODOR SCHOTT, M.D., NAUHEIM.

Allow me first of all to thank you heartily for your kind invitation, which affords me the opportunity to lay before you a few particulars of the treatment of heart diseases and some of my experiences in this connection.

Hardly twenty-five years have elapsed —and many of you remember that time — since there were, apart from hygienic directions, only two means of dealing with chronic cardiac diseases, viz.: rest and digitalis.

The general opinion, and the one generally held in our universities at that time, was that when these two means failed heart diseases were a *noli me tangere* for medical therapy. Even the view of Stokes, that in certain cases of fatty heart stronger exercise and climbing might prove very useful, was soon forgotten. This was partly due to the fact that, especially in the matter of chronic heart complaints, particular attention was devoted to pathological anatomy and to physical diagnosis, whereas therapy itself was more or less neglected.

No longer than twenty-five years ago, three methods of treating cardiac diseases appeared nearly simultaneously and, as I shall point out, quite independently of each other; they are known to-day as physical therapeutics. They were: the so-called Swedish method, the leading feature of which was Zander's treatment by the use of machinery; Oertel's mountain-climbing cure; and the balneological gymnastic treatment described by my late brother, August Schott, and myself.

You are well acquainted with these different methods. I may therefore enter at once into the consideration of the single points which are perhaps of special interest to you.

For the sake of completeness I must not fail to mention that the number of remedial agents used in the treatment of chronic cardiac diseases has largely increased. But I find it impossible, to my regret, at present to dwell on this subject at greater length and intend to treat it more extensively in the manuscript.

Digitalis, either with or without digitalin and digitoxin, is and always will remain our most important remedy. But sometimes its cumulative and toxic effect compels us to look for other means, the most important of which is tincture of strophanthus, which acts more slowly and safely.

A special reference may be made to strychnia, which is used *by mouth* and also subcutaneously. Strychnia may, of course, be used when the heart muscle is weak and relaxed. Its use is often desirable, but in recent years there has been perhaps too strong a tendency to resort to it as a heart tonic. It produces stronger contractions of the walls of the heart, but unless carefully watched, or when used for too long a period, it sometimes sets up a condition of abnormal irritation, occasionally followed by a recurrent weakness of the cardiac muscle.

Many other heart tonics, called vasodepressors, have likewise been adopted, especially the nitrites. Their chief representatives are erythrol-tetranitrite and nitroglycerin, the latter being more successfully employed in liquid form, generally a 1% alcoholic solution. The action of this is highly effective in some cases of pain and oppression.

In angina pectoris the haloid salts, especially those of iodine, often produce effects similar to those of nitrites. But they are not counted among the vasodepressors, and it is still an open question whether a changed viscosity or other circumstances exercise an influence in this respect.

Salts of mercury and, above all, calomel are not remedies for the heart in the strict sense; combined with digitalis, they are, separately or collectively, excellent diuretics.

The slowing of the pulse caused by morphia is the result of weakening of the ventricular contractions; thus it fails to tone up the heart. This view is amply supported by clinical observations. For all that, this remedy is not to be discarded entirely in cases of intense pain, oppression or conditions of great cardiac anxiety. A strong dose may then be administered, though not too frequently or for too long a time.

The inherent defects of remedies and the oft-recurring want of success obliged us to look for other means, and led at last to the methods, which, as I have said, are known as the physical treatment of chronic heart diseases.

Let us begin with the method which, though the most recent, aroused general interest for a short time, viz.: that of Oertel.

OERTEL'S METHOD.

The Dublin physician, Stokes, had already observed that an enervating régime is injurious to persons suffering from the heart, and more especially in cases of fatty heart. He expressed himself in favor of bodily exercise, chiefly mountain-climbing, and described how patients that were breathless as soon as they had begun to climb returned with an improved action of the heart. His teaching was soon forgotten until, some twenty-five years ago, it was taken up by Oertel, who modified his method, combined it with a limitation of the supply of liquids and applied it to the sphere of all disturbances of circulation.

Oertel had three objects in view, viz.: to facilitate the circulation by reducing the amount of liquid in the blood, to strengthen the heart by walking and climbing, and to remove the superfluous deposits of fat by a strict diet.

Numerous experiments and observations have proved the unsoundness of Oertel's original assumption that every quantity of liquid absorbed increased the amount of water in the blood. On the contrary, we have discovered

* Read before the Suffolk Medical Society in Boston, Mass.; Ontario Medical Library Association in Toronto; College of Physicians in Philadelphia, Pa.; Post-Graduate Medical College in New York, etc.

that the composition of the blood is much more constant and, above all, that a reduction in the quantity of the blood does not tend to strengthen the circulation in the lungs. Oertel's diet may be employed successfully in dealing with fatty hearts, and especially with persons whose blood is of normal quality. His dietetic scheme possesses the great advantage over those of Harvey-Banting, Schroth, Ebstein, etc., of coming nearer to the components which Voit and those of his school have laid down as best adapted to the nourishment of the human body. However, the point must be insisted upon that most sufferers from cardiac complaints do not want to lose fat but to increase muscle, and that a too great and too rapid loss of weight should be avoided. Losing from 40 to 50 pounds in from four to six weeks, as mentioned by Oertel, may be allowed now and again without injury, but experience shows that small losses of weight produced by inadequate nourishment combined with a diminution of liquids may cause serious harm within a short time.

The mechanical part of the Oertel treatment consists in the exercise of walking and climbing. For the latter the author selected mountainous localities of middling altitude named "Terrain kurorte," in which different degrees of climbing were prescribed. In this manner he hoped to obtain a development of strength of the heart by means of an increased action of the muscles. In later years Oertel combined the climb-cure with pneumotherapy, application of dry heat, electricity and massage. His manner of treatment was originally devised for fatty heart. In order to generalize it for the treatment of all chronic cardiac diseases, he propounded a number of theories, which were for the most part erroneous. It was, above all, the want of success attending these therapeutic measures and the dangers to which they so obviously gave rise that led many to abandon them. Instead of a low diet we often require a very strong and general one. Furthermore, climbing entails so much exertion on the organism that such a course should follow and not precede other cures; moreover, climbing should only be resorted to when by other means the heart muscle has become sufficiently strengthened to allow it to perform such an increase of labor without danger.

In accordance with this, Oertel's treatment may be adopted only in a very limited number of cases. Undoubtedly his greatest and undisputed merit is, that he has given a remarkable impulse to the mechanical treatment of chronic heart diseases.

THE SWEDISH METHOD.

Gymnastics and massage were first carried on practically on a large scale in Sweden. Having no scientific basis and not being improved upon, the Swedish method never went beyond Sweden until Wide and others took it in hand.

The system began to find general acceptance only through its most clever exponent, Zander, who, besides manual therapy, invented very ingenious apparatus, expecting to render the patient independent of the position of the body and of the assistant. Opinions, however, are much divided on these points. Nevertheless, it is beyond doubt that Zander's method constituted a most important improvement. It is an excellent means for strengthening the muscles of the heart and accelerating the circulation of the blood. Many points applicable to gymnastics in general hold good in regard to Zander's system.

But a continual supervision is needful here, in order to regulate the resistance of the apparatus and the maintenance of the patients during and after the exercises, otherwise failure is the result. These failures occur very easily, because exact individualizing in the determination of the resistance of Zander's mechanical contrivances is very difficult to obtain.

The great expense of the apparatus and of their use, also the restricted conditions under which the patients can have recourse to them, must be an obstacle to their general adoption. In recent times Herz has improved the Zander machines by the introduction of an eccentric wheel and a weight moving on a smooth inclined plane. There can be no doubt that the apparatus in question may be preferred to others, whose action is more limited, such as Gaertner's ergostat, the so-called hygienist, rowing apparatus, tricycle and many other modern apparatus.

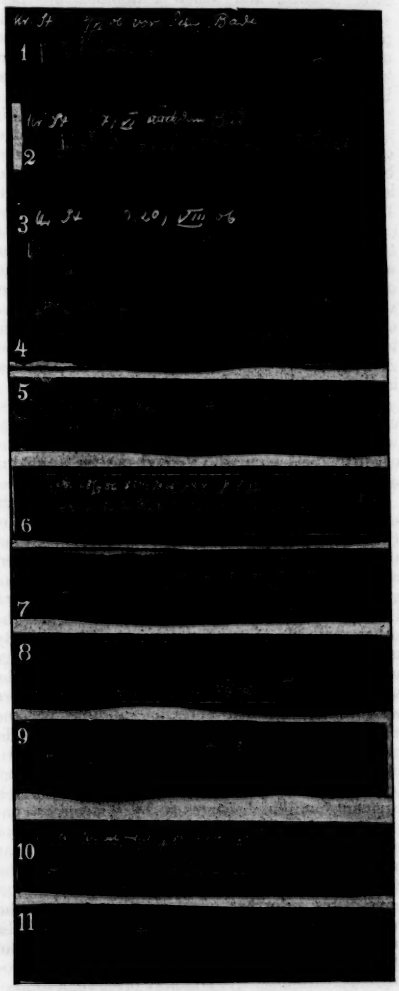
THE BALNEOLOGICAL-GYMNASTIC TREATMENT.

As far back as 1872 Beneke, in opposition to former views, showed that patients subject to acute rheumatic fever could successfully use mineral baths when the polyarthritis rheumatica acuta was complicated with cardiac complaints. Even when a freshly developed valvular lesion exists it may be cured within a short time by absorption of the exudations on the valves, obtained by the baths. My late brother and I found that a carefully executed balneological cure combined with gymnastics which culminate in mountain-climbing frequently and even regularly produce an improvement which is soon noticeable, and even, according to the nature and the condition of the complaint, an absolute cure. I wish to point out to you how we explained the mode of action of our treatment. We conclusively proved that the same principles obtain as regards baths as well as gymnastics, viz.: to promote the action of the heart with the view to stimulate its activity, *i.e.*, toning up a weak heart. In the majority of cases we have to deal with a comparative or absolute inadequacy of the heart muscles to impel the circulation of the normal quantity of blood. This inadequacy involves an insufficient expulsion of blood from the cardiac cavities and hence leads to dilatation. But not every dilatation, as first proved by A. Schott, leads to the danger of want of compensation. We must differentiate between a dilatation produced by congestion and a compensatory one. The latter serves to overcome the obstacles caused by valvular lesions. Only the first form

of dilatation requires treatment. The action of the heart muscles must be stimulated in such a manner that, by stronger systolic contractions, it may rid itself of the superfluous amount of blood. The dilatation — be it owing to insufficient ability to contract, or to a valvular lesion — means congestion of blood within the heart itself. The heart goes through many but insufficient contractions, and after each systole a certain quantity of blood remains within the heart cavities. The pressure within the aorta cannot be overcome merely by the force of the heart itself. My brother and myself were at last enabled to describe how, by means of our balneological as well as our gymnastic treatment, the heart becomes stimulated to a more forcible and vigorous systole.

The pressure within the aorta and within the entire arterial system, as established by experiments on animals, often increases to a considerable extent, but on account of the hyperkinesis and hyperplasia of the heart, it is in better condition to overcome this increase of pressure within the arterial system. The heart is now able to empty its cavities completely during the systole and, concomitant with this, the suction-effect of the diastole is more effective. In this way the heart is relieved from the constant overpressure which previously, during the permanent overfilling, acted upon the inner surface of the cardiac cavities, inciting the muscles to incessant and feeble beats. The increasing intra-arterial pressure endows the heart with new inhibitory impulses, and on this account it is enabled to beat more slowly and also more vigorously. This last fact is easily noticeable and has not only been frequently demonstrated by us, but also been confirmed by many others.

Various authors have attempted to explain the effect of the baths on the heart by a derivation of the blood from the internal organs to the skin and muscles. In this manner a saving and an alleviation of the heart's action may be produced. But to my view this theory does not sufficiently explain the vigorous and immediate effect of the baths and gymnastics. The action of the bath is generally weaker but more enduring, whilst that of gymnastics is more energetic but less lasting, especially at the beginning of the treatment. We observe a diminution of congestion within the pulmonary circulation as well as in the general venous system; in consequence of this a quieter respiration as well as a decrease of hepatic congestion and reduction of the cyanosis. Immediate observation usually shows a decrease in the frequency of the pulse. In consequence of the increased quantity of blood thrown into the arterial system the sphygmographic tracings show higher primary elevations. The slower pulsation causes the systolic and especially the diastolic tracings to be prolonged. The latter circumstance is the expression of a longer period of restoration of the weakened heart muscle. In suitable cases we notice that an already existing arrhythmia disappears. Herewith (Fig. 1) I show you the diagram of the pulse of a man fifty-two years old, who suffered from mitral insufficiency with long existing myocarditis complicated with emphysema. Within the first week of his stay at Nauheim, and even immediately



1. Before treatment.
2. After the first thermal bath, June 7, 1906.
3. After the first effervescent mineral bath, Aug. 20, 1906.
4. Mitral insufficiency after acute articular rheumatism, June 5, before treatment.
5. The same case after forty-two baths, Sept. 15.
6. Mitral insufficiency and stenosis, before treatment, June 28.
7. The same case after forty baths, Sept. 8.
8. Aortic stenosis, before treatment, June 17.
9. The same case after thirty-six baths and resistance exercises, Sept. 8.
10. Mitral stenosis, before treatment, June 1.
11. The same case after seventeen baths and exercises of resistance, June 23.

after his arrival, he experienced two violent attacks of embolism of the lungs. Besides that, he suffered from congestion of the liver, edema of the legs, etc.

The second diagram of the pulse (Fig. 2), taken after a bath, and which I demonstrate here, shows not only a decrease in the frequency of the pulse from 104 to 96, but also the disappearance of the arrhythmia. The blood pressure, measured by Gaertner's tonometer, rose from 82 to 90 mm. Hg.

A third diagram of the pulse (Fig. 3), shows the character of the pulsations at nearly the end of the treatment after an effervescent (sprudel) bath of spring No. 14. The frequency diminished to 78, the tonometric pressure rose to 105 mm. Hg. (Figs. 4 to 11.)

The effects of the balneological and gymnastic treatment may both be ascertained in the same way by percussion. The narrowing of the limits of the heart obtained by the bath is often not very considerable, though more lasting, whereas the gymnastic exercises reduce the size of the heart more quickly and considerably at the beginning of the cure; this effect is, however, less lasting, as I have mentioned before.

I take pleasure in demonstrating to you these changes in the heart-limits with a few drawings, which have been made partly by professors and other medical men who visited me in Nauheim, and partly by myself.

The radiograms including orthodiagrams are of valuable assistance in examining the size of the heart. But the difficulties for the patient to invariably assume the same position at different times, and the fact that the skiagrams do not give well-defined outlines of the heart, are both liable to give rise to errors and do not render the other methods of examination superfluous. By means of auscultation we often realize the change of the cardiac sounds during the treatment. The weak sounds of the heart often become more audible; some which were not audible become so. A murmur produced by a relative insufficiency changes into a divided sound and ultimately into a normal one. But in other cases, for instance in valvular diseases, a murmur which was not audible becomes so by a stronger contraction of the cardiac walls. Palpation and inspection also demonstrate that the apex beat moves upward and inwards; this with the simultaneous rise in position of the diaphragm constitutes a further proof that the size of the heart has been reduced. The ability to walk and the general condition are improved. The diuresis becomes more copious, chiefly by balneological treatment. As you may observe, a tonifying result is obtained similar to that following the administration of digitalis, but with the difference that injuries may easily be avoided. In addition to this the whole organism, and especially the cardiac muscles, gain strength. This strengthening of the heart is produced by the disappearance of congestion in the venous system and an increased volume of blood within the arteries. Owing to these facts the blood which flows into the coronary arteries is more highly oxygenated, the heart is better nourished, and more and better muscular substance develops itself.

In a large number of cases I have instituted exact investigations concerning the changes which the blood undergoes during a course of balneological-gymnastic treatment. In a dissertation, in which I communicated the results of these investigations, I proved that in such cases where the amount of hemoglobin had been diminished, it again became considerably increased by the treatment in question.

And now I should like to give you a short description of our balneological and gymnastic system. You will find something about it in many medical publications. Some of these have also been issued in America, such as those of William Osler, Babcock, Tyson, Anders, Solis Cohen, John K. Mitchell, Kinnicutt, Camak, Manson, etc.

THE BALNEOLOGICAL METHOD.

Let me begin by stating that it is just as impossible to give more than general rules in the matter of balneological treatment, as in that of internal medicine at large. I need scarcely say that strong individualizing in treatment is absolutely necessary. Balneological treatment is an agent of great power as regards its influence on the heart; and unless it be applied with due caution and under uninterrupted medical supervision, combined with frequent observation of that organ, the clinical picture often changes; without this careful supervision and observation, results the reverse of favorable may ensue. *Pari passu* with the treatment cooler temperatures are better borne and also applied with good results. Opinions supporting this view may be found in the publications of several Nauheim medical men. It is very often advisable to observe the patient before, during and after the bath. In severe cases it is best to begin with a simple brine bath. Our Nauheim baths containing from 2% to 3% NaCl and the same proportion per mille of CaCl, they have sometimes to be diluted. The duration of the bath should not exceed ten minutes with a temperature of 93° F. which should not be lowered much during the first week. When we have to deal with anemic patients or such as easily become chilled, prudence has to be exercised with the use of low temperatures. The temperature of 95° F. must not be exceeded, even when a combination of rheumatism and heart disease presents itself, otherwise the tonifying effect on the heart might fail to appear. In such cases cooler but shorter baths should be preferred. If the patient remains quiet he may during the first minute experience a sensation of chilliness. After that time a feeling of comfort must come over him, partly because of the heating effects of the bath, partly by becoming used to it. But should this feeling of comfort not be attained within one minute, and the chilliness not disappear, the bath must slowly and carefully be raised to a sufficient temperature. As a rule the patient must have the

sensation of warmth as long as he remains in the bath. There are cases when patients, in spite of keeping quiet in the bath, feel chilly again in a little while. This second chilliness should be avoided, for it shows us that such a bath was too prolonged for its relatively low temperature. Either the temperature must be raised at once or the patient leave the bath immediately. On the following day the baths should be taken warmer.

If the patient bears the treatment well, more concentrated baths may be given. First of all the concentration of salts should be increased, especially the quantity of CaCl. Later on the baths containing CO_2 may be employed. We concentrate the brine bath by the addition of mother lye condensed from our springs. The next step upwards is furnished us by the so-called thermal baths with their weak percentage of natural CO_2. For this purpose large open basins are provided into which the water is conducted. Part of the CO_2 evaporates in the air so that the water of three of our different springs reaches the bath with an amount of about 4-500 cc. of free CO_2 per liter. Besides these reservoirs large underground basins have been constructed, which make it possible to keep up the natural heat of the water and to reduce to a minimum the evaporation of the CO_2 in the open air. These reservoirs provide us with the water which we term "thermal sprudel." This water enters the bath with an amount of 1,000 cc. of free CO_2 per liter, and constitutes a transition from the thermal to the effervescent baths. The water for our effervescent or so-called sprudel baths is led directly from the main pipe into the bath tub; besides its strong mineral ingredients it contains between 1,200 and 1,500 cc. of free CO_2 per liter. Finally the strongest of the Nauheim baths is the effervescent running bath, known as sprudel-strombad. The water flows in and out, with an excess of pressure of from one-half to one and one-half atmospheres, whilst the patient is in the bath. The mechanical effect thus produced is still further enhanced by the largest proportional amount of CO_2 with natural temperatures of 86–93° F. with which we are acquainted, that is, 2,000 and more cc. of free CO_2 per liter; this renders these baths the most efficient we know of.

The majority of patients require an intermission, in some cases after the first, but generally after the second, day. At a later stage three or four baths in succession may be given and at the same time the duration of the baths may be prolonged, but it rarely should exceed twenty minutes. After each bath the patient should be rubbed vigorously so as to put him into a glow. After that he should remain in bed, at least one hour, in order to rest and maintain an equally warm temperature. The physician's endeavor should be to lead to a constant and careful increase of the efficiency of the bath. The baths should be given progressively cooler, longer and more frequently. A strict supervision of the condition of the heart should be kept up uninterruptedly; the success of to-day's bath should give the measure for to-morrow's. The efficacy of the Nauheim baths may be explained by the following data:

1. The possibility of the fullest graduation of the baths, which allows of beginning with a weak brine bath and then concentrating the mineral ingredients by means of mother lye, which acts strongly on the peripheral nerves, as it contains 40% CaCl.

2. The employment of waters of appropriate natural temperatures, viz.: 86–93° F., such as are used in ordinary life.

3. The possibility of beginning with a small amount of CO_2 which may be gradually increased to the greatest quantity we know of for these bathing temperatures. The water of the effervescent bath being in contact with the integument loses part of its CO_2 on account of the bodily heat. But in the sprudelstrom bath the water containing fresh quantities of carbonic acid gas in the nascent state is constantly being brought into touch with the bodily surface. We know by experiments that the mineral ingredients of the water act by imbibition, whereas the CO_2 with its movable molecules penetrates rapidly through the skin, and hence produces a quickly tonifying effect.

4. The mechanical effect of the sprudelstrom bath is added to this.

The radio-activity of the Nauheim springs was established two years ago by Professors Elster and Geitel, and the results were published in the *Physikalische Zeitschrift*.

The summer months are most suitable for the bathing treatment. In milder cases from four to six weeks are sufficient, after which an after-cure is advisable. This should be taken at a moderate mountain altitude, that is, not over 1,000 meters. On the other hand, in severe cases, the cure requires several months. In such cases it is advisable to divide the cure into two parts, between which the abode in the mountains should take place. In winter the patients should resort to a warm southern climate, in order to remain a long time in the open air.

The Nauheim baths may, to a certain extent, be made artificially. My brother and I have published exact directions on the subject. For this purpose either the Nauheim-bath salts may be used or else their most important ingredients must be employed: *i.e.*, NaCl and CaCl in due proportions. The development of carbonic acid gas is produced by bicarbonate of sodium and commercial hydrochloric acid. The chemical equivalents of both give the proportion in which they should be added to the bath. Should a solution of hydrochloric acid contain 42½% the proportion of bicarbonate of sodium should be the same. But when, as is generally the case, the hydrochloric acid is more diluted, the quantity of the solution must be increased in proportion to its concentration. The quantity of bicarbonate of sodium should at first be 100 gm. per bath, gradually being increased 1,000 to 1,500 gm., the bicarbonate of sodium being dissolved simultaneously with the other salts. The hydrochloric acid should be poured on the water close

to its surface and evenly diffused, or else the bottle containing it should be placed in the bath, some time before the patient enters it, in order to allow a slow diffusion of the hydrochloric acid. In this way the CO_2 may be developed for one half hour or longer.

Through our directions the artificial Nauheim baths have come into very extended use. I wish to lay particular stress on the fact, that many mistakes and misconceptions arise regarding the application of these baths. We often read in accounts of their effects that it is only the CO_2 which acts upon the heart. This, however, is quite erroneous. A good result — as already mentioned — may only be obtained with a gradual increase of all the component parts. Employing ingredients in fixed doses as manufactured and sold leads to the mischief that the quantity of CO_2 cannot be regularly graduated, the difference in the amount of CO_2 being too great and too sudden with each increase.

Thus, I have observed that unsatisfactory results were obtained with many patients, owing to the insufficient graduation, which rendered it impossible to regulate the bath either according to the nature of the complaint or to the temporary condition of the patient. It is evident that constant medical supervision based on long experience is absolutely necessary in the administration of artificial baths. In most instances a good result is obtained only when the patient is relieved from family and business worries, and, if possible, given better air and a change of surroundings. A suitable diet is likewise of great importance. In some cases and when proper means be adopted, excellent results may be derived from the artificial Nauheim baths. The number of successful cases must necessarily be limited, because the strongest forms of the natural baths — effervescent and effervescent running baths — cannot be made artificially.

METHOD OF GYMNASTIC TREATMENT.

As already pointed out similar results may be obtained with graduated gymnastic exercises as with bathing. The baths act through the sensory nerves, gymnastics through the motor nerves. We make use of, —

1. Exercises with resistance, in which the assistant resists the muscular action of the patient.

2. Gymnastics with self-resistance, in which the patient himself brings antagonistic muscles into action. The following principles may be recommended for the application of gymnastics: Each exercise must be performed so slowly and the resistance must be regulated in such a way that the patient is always in condition to breathe freely. This aim is best attained and fatigue of single muscles avoided when new groups of muscles are alternately brought into action and a pause made after each movement. When all the muscles of the trunk, arms and lower extremities have been exercised in this manner and the condition of the patient admits of it, the exercises may be repeated in several series. The different kinds of motion, consisting of flexion, extension, abduction, adduction and rotation are, of course, determined by the nature of the articulation of the joints. They have been so often described that no further description of them is required. I wish to add, however, that a great variety of exercises are performed. It is not very difficult to teach any one how to become a gymnastic operator, provided that he is conscientious and possessed of a certain degree of intelligence and power of observation. A certain amount of anatomical and physiological knowledge is presupposed; should it not be present it may of course gradually be acquired. In many cases it is advantageous to train a member of the family so that the patient may always avail himself of his services. Further rules for the operator are, that he must not grasp or in any way constrict a portion of the patient's body, so as not to impede the movements but resist them. When an exercise is carried on too quickly or with too great resistance he ought not to begin a new one before the patient breathes quietly and the pulse again becomes slower.

By adopting these exercises a bed-ridden patient may be relieved and strengthened to such an extent that he may be able to get about. I have received, on this point, most favorable reports also from medical men in the United States.

Even many years ago I had the opportunity to observe that in some cases in which digitalis had been extensively administered it ultimately proved inefficacious, whereas when used in combination with a bath and gymnastic exercises it again produced its effect.

It is advisable to resort first to the resistance exercises; later on the patient learns the exercises with self-resistance, which possess the great advantage of allowing him to make use of them at his own convenience and independently of any one else. After the resistance exercises the treatment, as already mentioned, should be concluded with mountain climbing, but only then, when the heart muscles have already become strong enough to bear the increased strain without any risk.

The powerful effect produced upon the heart by the baths and the gymnastic exercises indicates under what circumstances this treatment is inapplicable, in fact, when it is contra-indicated.

These are: 1. Aneurism of the heart and of the large vessels. 2. Cases of advanced arterio-sclerosis and such extensive degeneration of the cardiac muscle that every increase of muscular action becomes dangerous, either by producing rupture of the aneurismal sac or by causing apoplexy or embolism.

It has recently been attempted to include in the treatment by mineral baths cases of advanced arterio-sclerosis and well-developed myocarditis, for the reason that at a suitable temperature these baths cause the blood to divert from the internal organs to the periphery. In such special cases this factor should not be considered decisive, because the ingredients of the baths, with or without the CO_2, have a far stronger

effect upon the heart and may therefore lead to the above-mentioned dangers. Contrary to what has recently been maintained by some French and also by some German physicians it is inadmissible that the absolute height of the blood-pressure is any indication for the decision as to whether a bathing or gymnastic cure should be resorted to.

Thus we see that in cases of renal congestion or excessive dyspnea the unusually high blood-pressure decreases under our treatment while on the other hand a blood-pressure which has become too much lowered owing to debility of the heart increases under this same treatment. My brother and I resorted to massage, especially under the form of *tapotement*, particularly in cases of cardiac excitation, and by this means it often becomes possible to restore tranquillity within a short time. But this result is not lasting, which may also be said of vibratory massage.

The application of cold, especially in the form of ice-compresses or ice-bags, is also a good means for quieting the heart's action. In cases where the heart requires quick stimulation, the use of high temperatures may be resorted to with great advantage. For this purpose an india-rubber-bag containing water of from 140° to 160° F. may be applied by shifting it gradually over the entire region of the heart and chest.

Until recently electricity was mainly used in order to quiet the heart's action. During the last years electricity has been applied in the form of sinusoidal currents; it has been claimed that, in this way, the heart could be quickly and permanently reduced in size; this view has not been generally accepted.

A separate paper would be required to give an adequate description of the diet required by patients with heart disease. I only wish to point out the following general rule: a mixed diet is to be preferred, the nourishment must be easily digested and not spicy. Exciting or effervescent beverages, or such as tend to produce gastric distention, should be excluded. The consumption of any large quantity of liquids or solids at any single time should also be avoided for a distended stomach compresses the lungs and displaces the heart by pushing it upwards and outwards. In addition to this, the heart has to struggle against an increased intra-abdominal pressure, which should be avoided. When this pressure already exists, and is caused by constipation or flatulency, it may be made to disappear by combining a drinking cure of saline waters with the bathing cure.

The use of tobacco may easily prove injurious, and should either be restricted or entirely discarded, if possible.

Owing to want of time, and much as I should like to, I must refrain from dwelling upon certain accessory points such as dress, occupation, the advisability of contracting marriage, etc.

The skepticism which a few decades ago prevailed in the medical world has vanished in a great measure and a very material change has become apparent, especially as far as therapy is concerned. I should be greatly pleased if I have succeeded in showing you that satisfactory progress has really been made in the matter of therapy of chronic complaints of the heart.

Gentlemen, I thank you for the kind attention you have shown me during this lecture, and I hope that the subject I have laid before you may not have been entirely devoid of interest.

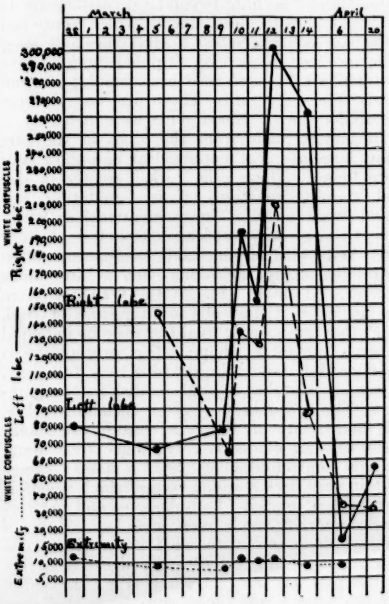
LOCALIZED LEUCOCYTOSIS ASSOCIATED WITH ATYPICAL PHAGOCYTIC CELLS.

BY W. B. BARTLETT, M.D.,
Interne Massachusetts General Hospital.

S. P., twenty-seven, single, a factory hand, entered Dr. Gannett's wards at the Massachusetts General Hospital on Feb. 26, 1907. He was born in Russia and had been one year in this country. He could speak very little English and was exceedingly stupid.

Family history negative; habits good. He claims never to have been sick until twelve weeks ago when he began to have symptoms of failing cardiac compensation. He took to bed two weeks before entrance to the hospital.

Physical examination showed a well developed man, slightly cyanotic, especially about the ears. Examination of the heart showed evidence of an aortic and mitral insufficiency with slightly broken compensation.



The liver was enlarged and tender; the spleen not palpable. There were no masses in the abdomen and no enlarged glands. The fingers were markedly clubbed. The first four days of his stay in the hospital he ran a slightly irregular fever which never went above 100.8°. Later the temperature became normal. Under digitalis he improved considerably and was

discharged relieved on March 16. He subsequently appeared several times in the Out-Patient Department and later entered the Boston City Hospital where he remained a few days.

The blood condition peculiar to this case was the existence of an extraordinary leucocytosis localized to the lobes of the ears and accompanied by certain atypical phagocytic cells. The leucocyte count from the lobes of the ears ranged from 30,000 to 300,000. It varied greatly from day to day and even from hour to hour. Counts from two punctures in the same lobe often varied markedly. Counts from the fingers, toes and top of the ear (where it joins the head) were always within normal limits, the lowest count obtained (top of ear, March 14) being 7,600 and the highest (toe, March 10) 12,200. On March 14 when the white counts from the right and left lobes were 84,000 and 262,000 respectively, red counts made from the two ears simultaneously gave:

Right lobe, 4,864,000. Left lobe, 4,944,000.

On April 20 the red count in the two lobes averaged 4,750,000. The finger count was 3,632,000. Specific gravity of the blood taken on March 11 was, for finger, 1,059; left lobe, 1,059; right lobe, 1,057. Differential counts of the leucocytes showed nothing beyond a slight increase in the basophiles in those smears which contained numerous atypical cells. Eosinophiles and mast cells were seen frequently. Stippled and polychromatophilic cells were seen occasionally; normoblasts were very rare. There was no achromia or poikilocytosis. Blood plates were increased.

In smears made from the lobes of the ears many large atypical mononuclear basophilic cells were found. These cells varied greatly in size and staining reaction. Every gradation was found from atypical large mononuclear leucocyte to large mononuclear leucocytes to very large cells with degenerated protoplasm often containing many inclusions such as are shown in Figs. III and VII. With Wright's stain the nuclei of these cells stain purple or dark blue; they are usually oval but may be indented or even horseshoe shape. The protoplasm is reticular and stains a bright blue to a dull gray. It usually contains several reddish-brown granules. The protoplasm is often vacuolated (Fig. III) and many of the cells contain inclusions. These cells are evidently very phagocytic. Many contain neutrophiles or their remains; others contain very dark staining bodies which resemble erythroblast nuclei. Lymphocytes and red corpuscles are only rarely seen included. Many of the inclusions are surrounded by a clear zone which would seem to indicate a digestive action on the part of the phagocyte (Fig. I). Often the protoplasm of these cells may be seen extending out in long streamers (Fig. V); these protoplasmic streamers often become broken off and may be found free in the smear. The cells appear to have a tendency to approach each other and to fuse (Figs. VI and VII). The number of these atypical cells varies greatly in different smears. In some they are very numerous; thus on April 20 they constituted 39% of the total cells counted in a smear from the left lobe, 34% from the right, lymphocytes being 4% in both.

It is an extraordinary fact that search has failed to reveal any of these atypical cells in smears made from the extremities or top of the ear. Similar cells are found normally in the bone marrow and spleen. They are identical with those described by Van Nüys in a recent issue of this JOURNAL.[1]

The fact that many of these cells contain inclusions which resemble erythroblast nuclei makes it appear probable that they originate either in the bone marrow or spleen. If such be their origin, how are we to account for their absence in blood from the extremities?

The patient denies ever having frozen or injured his ears. The appearance of the lobes is normal, except for marked cyanosis.

I am indebted to Dr. Van Nüys for verifying many of the counts and to Mr. L. S. Brown for his interest and care in taking the photographs.

GASTRO-ENTERIC OBSTRUCTION IN EARLY INFANCY.

GENERAL DIAGNOSIS AND TREATMENT, WITH A REPORT OF TWO CASES OF PYLORIC STENOSIS AND ONE OF VOLVULUS, SUCCESSFULLY TREATED BY LAPAROTOMY.

BY THOMAS MORGAN ROTCH, M.D.,
Professor of Pediatrics in Harvard University,
AND
FRED TOWSLEY MURPHY, M.D.,
Assistant Surgeon to the Infants' Hospital.

(Concluded from No. 19, p. 595.)

As a rule blood is found in the stools more often in volvulus of the sigmoid flexure than in volvulus of the small intestine. The presence of blood is not to be looked upon as so important a sign as in intussusception, but this possibility should be borne in mind. In our case the cause of the large amounts of blood which were passed by rectum is explained perfectly by the volvulus. The torsion increased, there was a more marked obstruction in the venous return, and the lumen of the bowel contained in the volvulus was filled with blood. Later the torsion became less, the lumen was patent and this large bloody mass was passed along the intestinal canal.

The continuation for several days of normal fecal movements may be misleading. If the volvulus involves the sigmoid flexure, and the obstruction is complete, the remainder of the large intestine is soon emptied; but if the volvulus is high in the small intestine, dejections from the material left in the large intestine may continue for a considerable time. Sooner or later, if the volvulus is not relieved, there appears a picture of profound collapse. The temperature, which has been elevated, may become subnormal,

[1] BOST. MED. AND SURG. JOUR., vol. clvi, p. 390.



Fig. I X1500



Fig. II. X1500



Fig. III X1500

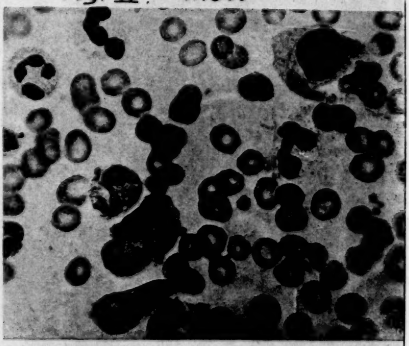


Fig. IV X750



Fig. V X1500

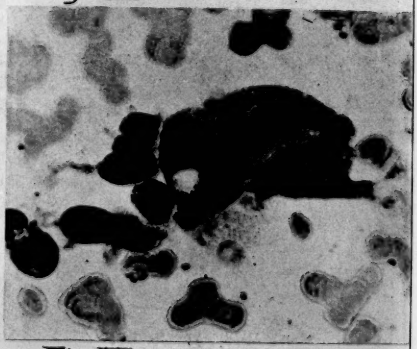


Fig. VI X750



Fig. VII X750

Photographs by L. S. Brown, Clinico-Pathological Laboratory, Massachusetts General Hospital.

the pulse becomes more rapid and weaker and death soon follows. This collapse may appear early in the course of the disease within a few hours after the onset of the first symptoms, and when it does, it is probably due to the shock incident upon the circulatory disturbance. Or it may appear late after there have been symptoms of a general peritoneal infection, in which case it is secondary to the general peritonitis, the infection having come from the intestinal contents of the volvulus.

Digestive disturbances are so common in infants, and their manifestations so varied, that an early diagnosis of an abdominal lesion is most difficult. As was stated above, the diagnosis of volvulus is for practical purposes the diagnosis of intestinal obstruction. Rarely typical physical signs, such as obstruction with local meteorism, will warrant a diagnosis of volvulus. Ordinarily a diagnosis of intestinal obstruction will be made from the signs and symptoms after it has been proven that the infant's food is not the possible cause of the disturbance. This, of course, does not apply to the case which is *in extremis*, with a history of persistent vomiting, possibly fecal in character, without fecal movements, and with a distended rigid abdomen.

Persistent vomiting coming on suddenly in an infant that has previously been well, combined with evidence of abdominal distress, and with marked changes in the fecal movements, either obstinate constipation or the admixture of blood, should always excite the suspicion of intestinal obstruction in some form. If the vomiting persists after the stomach has been washed out and all food has been stopped by mouth, an exploratory laparotomy is indicated. If these attacks of vomiting with the signs and symptoms of obstruction are intermittent, as in the case reported, a volvulus of some portion of the intestine is the most probable diagnosis. The treatment of these cases of volvulus is essentially surgical. Attempts to move the bowels by cathartics only increase the distress and further increase the torsion. The acute cases with symptoms of complete obstruction demand immediate surgical relief. The cases of partial or intermittent obstruction demand surgical relief as soon as it is determined that the symptoms are dependent upon some mechanical cause.

The special surgery of these conditions may be outlined as follows:

If rectal feeding has not been systematically and properly used, the condition of these emaciated pyloric stenosis patients may be much improved by giving three to four drams of peptonized milk by rectum for twenty-four hours before the operation. Moderate stimulation by brandy or strychnia is also given to advantage, either subcutaneously or with the enemata. In case the rectum is not tolerant, infusion of normal saline solution should be tried for twenty-four hours in the cases which are so much reduced as to be very poor surgical risks. Infusions under the pectoral muscles give the best results. An infusion should be given every three hours on alternate sides, and as much fluid injected as the subpectoral space will hold without too great tension.

The anesthetic of choice is ether. Only as much as will prevent the child from actually straining or vomiting should be given. Underetherization is never a serious matter with these diminutive patients, for they are easily and quickly controlled; and over-etherization is a very serious calamity.

Before the operation the stomach should be thoroughly washed out. In this day of perfected technic, asepsis is assumed in considering any major operation, but in operations on infants the avoidance of shock becomes a paramount factor, the importance of which is not infrequently overlooked. Maintenance of the body temperature is absolutely essential; therefore the chest and extremities should be enclosed with warm bandages before the infant is taken to the operating room. The temperature of the operating room should be at 90° or above. The top of the operating table should be artificially heated. If such a table is not available a heated top may be improvized by placing a blanket over a row of hot water bottles.

Manipulation of the parts and hemorrhage must be reduced to a minimum, for in these tiny patients rough handling of the abdominal contents or a profuse bleeding is fatal to success. The necessary rapidity of operation has been perhaps overemphasized. A degree of speed that leads to the slurring of any technical details in these operations for pyloric stenosis is most dangerous, because not only must the line of sutures be absolutely tight, but the parts must be correctly placed for the operation and retained in their proper relations after the operation. Under proper conditions, and with gentle manipulation, these patients stand an operation of thirty minutes well. The second half hour is not so well borne, and of course an extension into the third half hour is not to be considered. Unless unusual complications are met, thirty minutes is ample time for the necessary operation.

Various operative procedures have been used in the treatment of this lesion. Experience has reduced the number of justifiable operations to three — post-gastro-enterostomy, pyloroplasty and divulsion of the pyloric stricture. The divulsion or stretching of the contraction ring does not seem to be an accurate or a scientific procedure. It is also fraught with dangers which are not incident to the other two operations. In our opinion it is not to be recommended. A choice between post-gastro-enterostomy and pyloroplasty will depend somewhat upon the nature of the case, and primarily upon the personal preference of the operator. The pyloroplasty reproduces more nearly the normal anatomical relations. If it can be done with as low a mortality as the post-gastro-enterostomy it should prove to be the operation of choice. The thickness of the pyloric walls offers, however, certain technical difficulties, and it would seem that this operation had the same limitations as its counterpart, the Finney, in adults. A pos-

terior gastro-enterostomy has no anatomical limitations. It may be employed in every case. It is technically easy of application. While the normal relations are disturbed, and while, from an experimental viewpoint, this procedure of gastro-enterostomy is faulty, the clinical results have been most satisfactory. As yet there is no evidence that practically this operation does not meet every requirement. Certain technical details of the operation as applied to infants warrant special emphasis. The amount of jejunum taken by the stitches should be as small as is consistent with a solid suture in order that the lumen of the atrophied gut may not be obstructed. The use of the " in and out and over " stitch of Mayo in the anterior suture line of the anastomosis is of great assistance in this connection. Not only should the transverse mesocolon be caught up at either end of the anastomosis, but the jejunum itself should be sutured to the stomach beyond the anastomosis, in order to reduce the possibility of an obstruction caused by the sharp flexion of the gut at the end of the line of incision.

The now generally accepted technical steps as employed on the adult should be followed, namely, the use of clamps, the " no loop " operation with the anastomosis in the pyloric region of the stomach, and with the jejunum running downward to the greater curvature from the left to the right. An anastomosis of an inch to an inch and one half is ample.

In operating for volvulus the primary object is to relieve the obstruction of the intestine. This is of course accomplished by untwisting the volvulus. If it is possible by suturing the abnormally long mesentery, or fixing the intestine to the abdominal wall, to prevent the recurrence of the volvulus, this should be done. With these infants, however, with their reduced resistance, prolonged manipulation is never justifiable. What is to be done must be done simply and rapidly. If only the volvulus is reduced, it is possible, of course, that it should recur, but this will not necessarily follow, for, as has been mentioned above, the conditions which are necessary for the formation of volvulus are not infrequent in infants, yet volvulus rarely occurs. Therefore, it is probably fair to assume that the exciting cause of the first rotation will not be duplicated.

Should the intestine contained within the volvulus be considered non-viable, the whole gangrenous area, with as much of the mesentery as is involved, must be removed to prevent sepsis; but in these extreme cases whatever procedure is followed will probably be of no avail. After such an incision suture of the intestine should not be considered. The ends should be drawn out and the contents allowed to drain externally. In the case of a volvulus of the large intestine it may be wise to establish an artificial anus in order that the obstruction which might result from the paralysis of the bowel be at once relieved, but this procedure is not well borne by young infants. In these cases, therefore, the operation is reduced practically to the simple untwisting of the volvulus.

A comparison of the results of medical and surgical treatment based on the case reports in literature is manifestly unjust, because in the cases which have been said to recover under medical treatment the diagnosis of an actual hypertrophy can only be assumed, not proven, and without doubt surgical successes are more often reported than failures. It is yet to be proven, however, that medical treatment can give relief in the cases with an actual hypertrophy and with the lumen of the pylorus obstructed in a marked degree. Autopsy findings and case reports prove beyond a doubt that this hypertrophy may persist and cause fatal digestive disturbances in after years, even though the infant survives the first attack.

The surgical statistics show that in 60 cases operated upon 53.5% were saved. These operations represent the results of twenty-eight different operators and many different operative procedures. They are the results of the developmental period, and, considering everything, they are most brilliant and hopeful for the future.

The cases which have been operated upon successfully are too young to determine positively what the ultimate results will be. Lobker's [11] case, a posterior gastro-enterostomy, was followed for two years, and at the end of that time was perfectly well. Dent [12] has successful results from pyloroplasty four, three and two years after operation. These results are certainly satisfactory.

As in all other surgery procedures, forlorn hopes give a high mortality. In the future the operations for pyloric stenosis will show a much lower percentage of mortality than in the past, provided an early diagnosis is made, because gastro-enteric surgery is being done with more and more success.

The outlook for these cases of volvulus is bad. A spontaneous reduction of the volvulus which has not completed a full rotation may be possible, but it is hardly probable. What relief early surgical interference in these cases in infants will offer is a problem for the future. Certainly with operation some may be saved. Without operation they are practically hopeless.

CASE REPORTS.

The case A. M. was seen with Dr. Stickney of Arlington.

The child was five weeks old. He was healthy at birth. The parents were normal individuals. During her pregnancy the mother had been in the best of health. At birth the child weighed 6¾ pounds, was at once put to the breast and nursed normally. The dejections were well digested, yellow, and normal in every way. At the end of the fourth week of life, without evident cause, the child began to vomit persistently. A weak home modification was substituted for the breast milk without influencing the vomiting. One grain of bicarbonate of soda was then added to each dram of this mixture, but without effect. The child was then

[11] Verhandl. d. deut. Gesell. für chir., vol. xxix.
[12] Brit. Med. Jour., Oct. 13, 1906.

put back on the breast and the bicarbonate was continued. The vomiting then ceased for several days.

On Nov. 11, it began to vomit again. Large amounts were vomited at a single time, and the vomiting was expulsive in character. It did not occur after each feeding. Sometimes one and even two feedings were retained. The vomitus was free from bile — practically the ingested milk. The weight fell rapidly from 8 pounds to 6¾ pounds. The character of the movements changed. They were small in amount and resembled meconium.

Nov. 12, a Walker-Gordon modification of 1.5. .25, .25 pasteurized at 155° with 10% lime water was tried but was expelled as the breast milk and home modification had been. Whey was then given, but was also expelled.

On Nov. 12 Dr. Stickney and Dr. Rotch had felt a rather deep-seated, indefinite lump to the right and a little above the level of the umbilicus. Frank visible peristalsis had not been observed.

Examination Nov. 14, 1906, showed a fairly developed, but rather thin child. The sensorium was normal and the extremities were moved vigorously. The face was pinched and the cheeks sunken, but the impression was that of starvation rather than of any acute illness. No definite tumor in the region of the pylorus could be palpated at this time. By stroking the epigastric region, doubtful peristaltic waves could be demonstrated. A feeding of an ounce of whey was taken, and immediately expelled with great force.

A diagnosis of pyloric stenosis was made and operation was advised. The child was brought from Arlington to Boston and stood the journey well. Before the operation the stomach was washed out until the fluid returned clear. An incision about one and one-half inches long was made in the median line extending to just below the umbilicus. On opening the abdomen the stomach was found much dilated and with the walls markedly thickened. This thickening was so marked that it suggested almost an edematous condition. At the pylorus there was a smooth, non-adherent, hard tumor, about the size of the distal phalanx of an adult finger. To palpation this pyloric tumor was solid throughout; that is, there was no sensation of a cavity, such as one feels in a rubber ball with a hollow center. At the stomach side of this tumor was a sharply marked contraction ring. The jejunum and small intestine were not remarkable except that they were collapsed. They were not contracted as in those cases where practically no food has ever passed the pylorus. The mesentery was normal. A posterior gastro-enterostomy was done with the aid of clamps. Pagenstecher thread was used for all sutures. The mucous membrane did not seem to be excessive and was therefore not excised. The anastomosis between the stomach and the jejunum was made in the pyloric region of the stomach, and as close to the duodenum as could be done without causing tension of the sutures — practically a " no-loop " operation. The jejunum ran from right to left where it was anastomosed to the stomach, the opening being about an inch and a quarter in length, with the slant downward, and with the lower or left end at the greater curvature of the stomach. The mesocolon was caught up on either side of the anastomosis with stay sutures, and the jejunum was also stitched to the stomach beyond either end of the incision in order to prevent a sharp kinking of the gut. The abdominal wall was then closed with a catgut suture in the fascia and peritoneum and silkworm-gut stay sutures.

The child stood the operation, which lasted thirty minutes, well. Three hours later he was in a very good general condition, and was given a dram of sterile water, which was retained, and the child seemed eager for more. For the next four hours the child seemed very hungry, and during that time he was given and retained two ounces and four drams of a 1.5, .25, .25 mixture. Shortly after that he regurgitated a considerable amount. During the rest of the night this weak modification was taken in small amounts, but was not well retained, and in the morning of the day following the operation an amount was vomited which was much larger than the last feeding. The stomach was then washed out, very few curds returning in the wash water, and all food by mouth was stopped, and an ounce of normal salt solution and 15 m. of brandy were given by the rectum. At this time the general condition was not good. The color was bad, the face pinched. For the remainder of the day 4 drams of peptonized milk with 15 m. of brandy were given every three hours, and were well retained. The child was comfortable, and the general condition in the evening was decidedly improved over that of the morning.

During the next twenty-four hours the enemata of peptonized milk and brandy were continued, the sterile water in dram doses was given every half hour and retained.

The enemata were now omitted, and during the next two days the food consisted of whey and sterile water, the water being given every fourth feeding in amounts up to an ounce and a half, every one and a half hours.

On the fifth day after the operation a 1.5, .25, .25 modification was substituted for the whey. From this time on the strength of the food was gradually increased, the fats and sugar being run up first, and then gradually the proteid. The bowels moved normally and there was no vomiting after the stomach had been washed out on the morning following the operation.

Eight days after the operation the child weighed seven and three-quarter pounds, showing a pound gain over the weight which was taken two days before the operation, and which, therefore, probably does not represent fairly the weight of the child at the time of the operation. The wound united per primam, and the stitches were removed on the eighth day. The temperature rose to 102° the day after the operation, but after that day ran along within a degree of normal.

Fourteen days after the operation the child weighed eight and one-quarter pounds, and as far as could be judged, the condition was that of a normal infant. No pyloric tumor was palpable and there was no fullness in the epigastric region.

This case emphasizes certain points, namely, a normal breast-fed infant without evident cause began to vomit. This vomiting was expulsive in character, of large amount, and was not controlled by careful feeding with the addition of alkalies. The loss of weight was progressive and rapid. There was no evidence of any acute enteric disturbance. The character of the movements changed from the normal to that of meconium. The stomach was dilated and a tumor in the region of the pylorus was at times palpable.

The case E. N., age six weeks, was also seen with Dr. Stickney, of Arlington.

The parents were normal individuals. The mother's first child has been normal in every way, and has been nursed until time for stronger food.

This child was normal at birth, and is said to have weighed eleven pounds. For a week the child nursed. The movements of the bowels were normal, and there was no vomiting. At this time the mother had a little

retained placenta removed, but there was no general upset, and the character of the milk apparently was not disturbed. The child began to vomit. Lime water in one-half to one dram doses was given with each breast feeding, but without effect. The vomiting was in large amount and projectile in character. At times one feeding would be retained, and then on taking the next, the whole would be forcibly expelled. The movements of the bowels grew gradually less, but were of fairly normal character. At the fifth week the breast feeding was stopped, and a weak home modification was substituted. This was given in one-half to one ounce amount every two hours, but was expelled as the breast milk had been. Next a 1. 5, .25, .25 Walker-Gordon modification with 10% lime water was tried. This also was expelled. Except for the vomiting the child had not been sick. The loss of weight had been rapid and progressive. The mother states that she has noticed some retraction of the head, and the extremities had seemed to be stiff; but there had been no convulsions.

At the time of the examination, Dec. 11, the child seemed cold, and the color was not good. This was attributed to the fact that it had been brought that afternoon in a car from Arlington. The head was held somewhat retracted, but could be moved freely. The fontanelles were normal. The chest was negative. The hands were kept tight shut but not in a position of tetany. The legs were moved normally and the reflexes were normal. The abdomen was not remarkable except that to the right of the median line, high up close to the liver, the edge of which came to the costal border, there was palpable a definite small, hard mass about the size of an olive. With the stomach full, the lower border was percussed out a finger's breadth below the umbilicus.

During the examination the child was given an ounce of modified milk, and this was promptly expelled with great force. It was not possible to demonstrate peristalsis in the epigastric region. The child weighed 5 lb. 14 oz. A diagnosis of pyloric obstruction was made, and operation advised.

For twenty-four hours the child was kept on rectal feeding, 4 drams of peptonized milk every three hours. During this time it was noticed that the child periodically would throw its head back, and the extremities would be stiffened out. When the head was thrown back the respiration changed in character. There would be shallow inspirations, then a deep long breath, and finally the regular rhythm would be taken up again. Before the operation the stomach was thoroughly washed out.

The abdomen was opened through a median incision about two inches long. The stomach was found dilated, the walls thickened, with the greater curvature lying at the level of the umbilicus. At the pylorus there was a typical non-adherent tumor of pyloric stenosis. This tumor was about three quarters of an inch in length, and as large around as an averaged sized finger. Judged from palpation, this pyloric tumor was not completely solid. It felt and rolled under the fingers as if there were a small hollow center inside of the rigid walls. The small intestine was small and collapsed. The mesentery was normal. The fat had almost entirely disappeared from the omentum. Gastro-enterostomy was done with the aid of clamps. The jejunum, as close to the duodenum as possible, was anastomosed with the pyloric end of the stomach running from right to left. The anastomosis was about an inch and a quarter long with the lower left end at the greater curvature of the stomach. Pagenstecher thread was used for the sutures. The abdominal wall was closed with double continuous No. 1 catgut suture in the peritoneum and fascia, and silkworm gut in the skin.

During the operation which took between thirty and thirty-five minutes, the child's pulse had remained of good character, but the respiration had been very peculiar. Although well etherized, the diaphragm would periodically contract and the abdominal muscles become rigid. At such times the respiration would become very slow and shallow, as in the attacks noted before the operation. At the end of the operation the color was good, and the respiration was not abnormal for about fifteen minutes. Then the periods of retraction of the head with slow shallow respiration began. There would be a half dozen normal respirations, and then a deep sigh with retraction of the head. The chest walls at these times would be rigid, — non-compressible without great force. After about ten minutes of these spasms respiration practically ceased. Ten minims of brandy and strychnia one three hundredth had been given subcutaneously. Artificial respiration with an oxygen tube inserted in the mouth was then kept up for twenty-five minutes. The pulse throughout this time could be felt at the wrist. Then the child began to breathe, but the spasms continued frequently for the rest of the day. During these spasms, the appearance of the veins of the head was very peculiar. They would flatten out so as to become almost invisible, and then, as the respiration became normal, would suddenly distend and become very prominent.

As soon as possible the child was given an ounce of salt solution with 10 m. of brandy by rectum. Two hours after the operation, the respirations had become normal except for now and then a deep inspiration. Pressure on nerves or blood vessels did not affect the condition. Now if the tongue were drawn forward at the time of these deep inspirations, the spasm seemed to be stopped, and the respiration would start up at the normal rate. It is certain that during the time artificial respiration was employed the position of the tongue so long as it was not allowed to drop back into the pharynx did not influence the spasms. For thirty-six hours after the operation the mouth was kept moist with hot water, and the child was nourished by enemata of one-half ounce of peptonized milk given every three hours. During the next twenty-four hours water was taken and retained in dram doses every half hour, being given with a dropper. During this time were three small black dejections.

On the second day, on removing the abdominal dressing, it was found that the abdominal incision had been pulled open and a small piece of the omentum had come out into the dressing. This was cleansed and returned to the abdominal cavity. The protrusion of the intestines was controlled with gauze packing, and the abdomen strapped with adhesive strips. On this day whey was started in dram doses and gradually increased in amount, and the enemata were omitted.

Four days after the operation it was necessary to give ether and to resuture the abdominal wound. At this time there was no return of respiratory spasms.

On the fifth day a 1.5, .25,. 25 modification of milk with 10% lime water pasteurized at 155° was substituted for the whey, and a nipple was used. Previously all food had been given by a medicine dropper, it being feared that the nipple might in some way irritate the pharynx, and start up the respiratory spasms. From now on, the strength of the food was gradually increased. The dejections continued to be normal, and there was no vomiting. The respiratory spasms disappeared absolutely, as did also the retraction of the head, and the rigidity of the extremities.

Eleven days after the operation the child weighed

7 lbs. 4 oz., a gain of 1 lb. 2 oz. During the next four days there was a gain of four ounces.

Excepting for a small area at the upper end of the incision where a wick was placed at the time of the secondary suture, the repair of the abdominal wall seemed to be as satisfactory as if the original sutures had held.

This case also emphasizes certain salient points, namely: the normal breast-fed child began to vomit. There was, of course, a question whether or not the illness of the mother had changed the character of the milk; but vomiting continued on any and all sorts of modifications, with and without alkalies. There was a definite tumor to be palpated in the pyloric region. The stomach was dilated. The vomiting was expulsive in character, of large amount, and free from bile. In addition to these classical signs and symptoms, there was a condition of a typical tetany, which, in the light of recent observations, might be associated with the obstruction at the pylorus.

The case B. D. was seen in consultation with Dr. Hooker, of Arlington.

The parents were normal individuals. The previous children, three in number, were normal at birth, and had continued in normal development. There had been nothing remarkable in regard to the intra-uterine life of this child, who was born on Oct. 9, after a normal labor, and weighed seven and three-quarter pounds. During the first day of life the infant vomited on three occasions a considerable amount of mucus, and the color was noted as being green. On the tenth the child passed normal meconium and urinated, and was apparently all right. He was put to the breast, and nursed normally. On the following day there were several large dejections of clotted blood, and small petechiæ appeared on the forehead and cheek. Gelatine was given by mouth for the hemorrhage. Late in the day a considerable amount of greenish material was again vomited. On the next day, the third after birth, there were five or six attacks of expulsive vomiting, the vomiting occurring about an hour after feeding. During the following forty-eight hours the attacks of expulsive vomiting were fewer in number, but the vomitus at times was bright yellow, and of greater quantity than the food taken. The urine became very scanty. The temperature which had been ranging from 101° to 102°, now came down to about 99°, and on the 15th, six days after birth, was normal. Sodium bicarbonate grains one, was now given with each feeding. Only one bad attack of vomiting on this day. The dejections, three in number, were of fair consistency and color and without blood.

Oct. 16, an ecchymosis about the size of a cent appeared on the right chest. The character of the dejections improved, and the urine was passed more freely.

On the 17th, the child weighed six and three-quarter pounds, a loss of one pound from the birth weight. There was practically no vomiting, one yellow dejection. The general condition seemed much improved. For the next twenty-four hours the child seemed to be doing very well. There was no vomiting, temperature 99°.

On the next day the attacks of vomiting returned. The vomitus was large in amount, greenish in color. On the 20th the vomiting became more frequent. The breast milk was drawn with a pump, and given with a dram of lime water with each feeding. Enemata of one-half ounce peptonized milk were also given.

On the 21st the general condition seemed to be better. There was one large yellowish dejection, and two small dark dejections. On the 23d, that is fourteen days after birth, there were six attacks of expulsive vomiting large in amount and dark green. The weight had fallen to 5 lb. 13 oz. Calomel was then given in fractional doses up to one grain. During the next three days the child was tried on breast milk diluted with lime water, whey and a modified mixture of 1.5, .25, .25 with 10% lime water; but the attacks of vomiting continued without remission. The general condition grew markedly worse. The temperature on the morning of the 28th was 96°.

Examination. — On the 28th, the child lay rather stupidly, with the face drawn, and the cheeks sunken. The fontanelles and eyes were normal. The expression was not peritonitic. The chest was not remarkable. The skin showed no petechiæ. The abdomen was not distended. There was no free fluid, and no abdominal mass was palpable. There was no evidence of a distended loop of intestine. On stroking the epigastric region visible peristalsis of the stomach was seen. A diagnosis was made of some obstruction of the small intestine below the entrance of the common bile duct. It did not seem probable that this obstruction was of congenital origin on account of the periods of normal dejections and relief of the vomiting. While the movements had contained blood, there had not been the characteristic bloody mucous stool of intussusception. Pressure or torsion was suggested as the most probable factor in the obstruction. The stomach was washed out before operation. The anesthetic was ether.

The abdomen was opened by an incision in the median line about two and one-half inches long, which extended from the epigastrium down below the umbilicus. On opening the abdomen, contracted dark small intestine presented. When manipulated this intestine contracted vigorously, the peristalsis running in both ways. The condition was one which may be seen in experimental lesions on animals, where there has been a partial obstruction of the venous return. There was no free fluid. The stomach and pylorus were apparently normal. The duodenum in the first and second parts was distinctly dilated. The large intestine was normal in appearance, and was not explored. The cecum preserved its embryological position under the liver. The upper part of the jejunum was then searched for some congenital narrowing, but nothing was found. No tight constricting band could be seen or felt. The small intestine was then lifted *en masse* out of the abdomen and it was found that the abnormally long mesentery, which preserved its embryological attachment, was rotated on itself from left to right to the extent of about 270°. After relieving this torsion, the circulation in the upper jejunum and lower ileum immediately improved. Apparently the torsion was sufficient only to obstruct partially the venous return, and to cause a partial or complete obstruction in the lumen of the gut, subject to the increase or decrease of the torsion. During the manipulation the intestine had been kept moist with warm normal salt solution. The abdomen was closed with through sutures of silkworm gut. Salt solution, one ounce, was given by rectum at the close of the operation.

Though the exploration had been extensive, it had taken but about ten minutes, and the child suffered practically no shock. Brandy in 4 m. doses and strychnia in one three-hundredth doses, were ordered every six hours subcutaneously.

During the night following the operation one and one-half ounces of modified milk 2.5 .25,.25 was taken, and only two drams of greenish fluid vomited. The day following the operation the modified milk was taken in six-dram feedings every one to two hours. The

child vomited a small amount four times, and once a considerable amount. There were two dejections which were of dark color.

In the afternoon there was a considerable hemorrhage from the skin incision, and two superficial stitches were placed without ether by Dr. Hooker. For the next four days there was a severe enteritis, nine to ten dejections in twenty-four hours; but except for now and then a spitting up of a small amount of food, there was no vomiting. The temperature ranged from 100° to 101°. From now on the case became one of a severe enteritis, in the treatment of which modified milk of various strengths was used. On the ninth day after the operation there was a marked desquamation which was evidently secondary to the nutritive disturbance. The wound healed per primam and the stitches were removed on the twelfth day.

On Nov. 13, sixteen days after the operation, the child weighed 4 lb. 14 oz. At this period the temperature for several days was subnormal. On the 15th the first gain in weight was noted — 5 lb. 2 oz. With slight fluctuations this gain slowly continued, and Nov. 30, the weight was six pounds. The child has continued to show a slow but steady gain and at the last report weighed almost 11 pounds. There have been no more attacks of the explosive vomiting with bile in the vomitus.

The cardinal symptoms of this case were a more or less intermittent vomiting of bile associated with signs of intestinal obstruction in some form as shown by the character of the vomiting and the changes in the feces, the fecal discharge being intermittent and at times containing large amounts of blood. Save for the visible peristalsis in the region of the stomach, the examination of the abdomen was negative. Obscuring this vital condition of obstruction was a hemorrhagic disease of the newborn.

TREATMENT OF PROSTATIC HYPERTROPHY. THE CONSIDERATION OF THE VARIOUS METHODS OF TREATMENT BASED UPON THE MORTALITY AND THE REPORT OF TWENTY-FOUR CASES OF MEDIAN PERINEAL PROSTATECTOMY.

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(Concluded from No. 19, p. 606.)

CASE I. W. N., age fifty-six. October, 1903. Denies venereal. *Frequency:* Gradually increasing for past four years; now urinates every one to two hours during the day, and six to eight times during night; has had two attacks of urine retention requiring catheterization; has used catheter every morning for past eight months; lately has had difficulty in introducing it. *Pain:* Not marked. *Stream:* Much difficulty in starting; comes slowly; drops directly from meatus; some dribbling. *Blood:* Slight amount during past few weeks after catheterization.

Examination. General condition: Moderate sclerosis; faint arcus senilis; heart action good. *Local condition:* External genitals normal; small inguinal hernia, both sides; small hemorrhoids.

Rectal examination: Both lateral lobes considerably and equally enlarged; median raphe pronounced; surface smooth; a little harder than normal and slightly sensitive; anterior urethra not constricted. Bladder entered by Coudé No. 12 Fr., not deviating from a median line. Residual urine, 14 oz.

Urine examination: Turbid; 1,012; alkaline; ammoniacal odor; urea 1.8; albumin, ¼ of 1%; sediment, chiefly pus.

Cystoscopic examination: The obstruction is of bilateral lobe enlargement, an anterior and posterior cleft being well defined; moderate degree of chronic cystitis; no stones.

Operation: Median perineal prostatectomy, two fair-sized lateral lobes. Penile drainage. Duration of operation, four and one-half minutes. Duration of etherization, ten minutes.

Patient out of bed day following. Drainage removed in five days. Perineal wound healed twelve days.

Present condition: Patient holds urine four hours during day and passes it but once during night; residual urine less than 1 oz.

CASE II. J. A. L., age sixty-five. December, 1903. Denies venereal. *Frequency:* Increasing during past four years; now urinates every hour during day, six to eight times during night; often wets bed by dribbling. *Pain:* Dull pain over pubes during past two years and at corona glandis after urination. *Blood:* During past year has noticed it often after urination. *Stream:* Starts with difficulty; comes slowly; drops directly; dribbling for two or three minutes.

Examination. General condition fair; moderate sclerosis; slight myocardial changes.

Local examination: External genitals normal; right inguinal hernia; hemorrhoids.

Rectal examination: Prostate bilaterally enlarged; median raphe obliterated in upper two thirds; surface smooth, slightly harder and less sensitive than normal. Bladder catheterized by a Bigelow evacuating catheter, which rotated to the right about 30° during its passage through the upper portion of the prostatic urethra; stone felt by tip of instrument posteriorly. Residual urine, 19 oz.

Urine examination: Foul; ammoniacal; 1,010; ½ of 1% albumin; alkaline; urea, 1.01; sediment, much pus and squamous epithelium, normal and abnormal blood, few brown glandular casts, some with fat adherent, many crystals.

Subcutaneous injection of 0.01 gm. phloridzin showed sugar to appear in between fifteen and twenty minutes.

Cystoscopic examination: The obstruction was determined to be of bilateral and middle lobe encroachment; marked degree of chronic cystitis; fair-sized stone lying in the bar fond.

Operation: Median perineal prostatectomy; after enucleation of the lateral and middle lobes, the stone was broken by stone forceps and removed through the vesical orifice without rupturing it. Perineal drainage with de Pezzer catheter. Duration of operation, six minutes. Duration of etherization, fifteen minutes. Drainage removed on eighth day. Perineal wound healed on the twenty-first day.

Present condition: Patient holds urine three hours during day and passes it twice at night; residual urine almost 2 oz.; cystitis present in slight degree; casts with fat adherent occasionally found in urine.

CASE III. A. J. G., age sixty-nine. March, 1904. Denies venereal. *Frequency:* Increasing for past year and a half; now urinates about every hour during day and seven or eight times during the night; complete retention yesterday; relieved by catheterization. *Pain:* None except during retention. *Blood:* None, except at time of catheterization. *Stream:* Starts with some difficulty; has come well and with slight projection; a little dribbling.

Examination. General condition fair; moderate sclerosis; moderate myocardial changes.

Local examination: External genitals normal except slight atrophy of testes.

Rectal examination: Prostate bilaterally enlarged; median raphe pronounced in the lower two thirds, less so in upper third; surface smooth, boggy and sensitive. Bladder catheterized with soft rubber catheter, No. 10 Fr.. Residual urine, 12 oz.

Urine examination: High; neutral; 1,018: albumin; $\frac{1}{5}$ of 1%; urea, 2; sediment mostly normal and abnormal blood, considerable pus, some small, round cells and squamous epithelium, many crystals. Subcutaneous injection of 0.01 gm. phloridzin shows sugar to appear in twenty minutes.

Operation: Median perineal prostatectomy; two lateral lobes and a small median lobe enucleated. Perineal drainage with de Pezzer catheter. Duration of operation, three minutes; duration of etherization, nine minutes. Drainage removed on third day. Perineal wound healed on fourteenth day

Present condition: Patient holds urine between four and five hours during day and passes once at night; residual urine, $\frac{1}{2}$ oz.

CASE IV. M. McC., age fifty-seven. November, 1904. Admits gonorrhea at twenty. *Frequency:* Increasing for past three years; never catheterized; now urinates every one and one-half hours during day, four or five times during night. *Pain:* At corona glandis after urination. *Blood:* None. *Stream:* Starts with difficulty; comes slowly; slight projection; dribbles considerably.

Examination: General condition good; very slight sclerosis; heart normal.

Local examination: External genitals normal, except for small lump in right epididymis.

Rectal examination: Right lobe of prostate larger than left, which is also slightly enlarged; median raphe convex toward left, not pronounced; surface smooth, normal in consistency and sensitiveness. Bladder catheterized with a No. 14 Coudé, which rotates to the patient's left about 15° during its passage through prostatic urethra; there is also considerable resistance. Residual urine, $8\frac{1}{2}$ oz.

Urine examination: Cloudy; slightly acid; 1,018; albumin, slight trace; urea, 2.8; sediment, chiefly pus, small, round squamous and few caudate cells.

Cystoscopic examination: The obstruction was determined to be due to bilateral lobe enlargement, chiefly on the right side; no stones; moderate degree of chronic cystitis.

Operation: Median perineal prostatectomy, large right and medium sized lateral lobes. Perineal gauze drainage. Duration of operation, three minutes. duration of etherization, ten minutes; Perineal wound healed on the eleventh day.

Present condition: Could not be determined.

CASE V. M. C., age sixty. December, 1904. Denies venereal. *Frequency:* Increasing for past six years; now urinates every half hour during day, many times at night; wets the bedclothes; has had six attacks of retention requiring catheterization and confinement in bed; has used catheter twice a day for three years; now finds difficulty in introducing it. *Pain:* Over pubes and in perineum most of the time. *Blood:* Follows each catheterization. *Stream:* Very difficult to start; comes very slowly; no projection; dribbles almost constantly when he fails to catheterize himself night and morning.

Examination: General condition fair; considerable sclerosis; rather pronounced myocardial changes.

Local examination: External genitals normal; large inguinal hernia on left, small one on right; hemorrhoids.

Rectal examination: Prostate shows extensive bilateral enlargement; median raphe pronounced; surface smooth, harder and less sensitive than normal. Bladder catheterized by Bigelow evacuating catheter, which remains in the drain also during its passage through prostatic urethra. Residual urine, 23 oz.

Urine examination: Purulent; putrid odor; 1,012; albumin, $\frac{1}{4}$ of 1%; urea, 1.8; sediment, much pus, some abnormal blood, few granular casts, some with blood corpuscles adherent. Subcutaneous injection of 0.01 gm. phloridzin shows sugar to appear in between twenty and twenty-five minutes.

Operation: Median perineal prostatectomy, two lateral lobes. Perineal drainage with de Pezzer catheter. Duration of operation, four and one half minutes. Duration of etherization, eight minutes. Drainage removed on the eighth day. Perineal wound healed on twenty-fourth day.

Present condition: Patient holds urine about three hours during the daytime, passes it two or three times at night; residual urine, 1 oz.; cystitis still present in slight degree; no casts found in urine.

CASE VI. C. H., age sixty-seven. February, 1903. Denies venereal disease. *Frequency:* Increasing for past two years; now urinates every hour and a half during day and seven or eight times during the night. *Pain:* Slight in the perineum before urination. *Blood:* On one occasion, three months ago, when he had increasing difficulty in urination; never catheterized. *Stream:* Starts with difficulty, necessitates a leaning posture, comes slowly and dribbles for four or five minutes before the act.

Examination: General condition fair; considerable sclerosis; heart sounds distant and slight systolic murmur transmitted to the aortic region.

Local examination: External genitals normal; small hemorrhoids.

Rectal examination: Prostate bilaterally enlarged to marked degree; median raphe pronounced throughout full length; surface smooth, slightly boggy, not abnormally sensitive. Bladder catheterized with soft rubber catheter, No. 14 Fr. Residual urine, 16 oz.

Urine examination: Turbid; alkaline; 1,012; albumin, large trace; sediment, chiefly pus, some normal and abnormal blood, some large round cells and triple phosphate crystals.

Cystoscopic examination: Obstruction was determined to be from bilateral lobe enlargement; moderate degree of chronic cystosis; one diverticulum seen at a point just above trigone and to inner side of right ureteral orifice; no stones.

Operation: Median perineal prostatectomy, two fair-sized lateral lobes. Perineal drainage with de Pezzer catheter. Duration of operation, three minutes. Duration of etherization, eleven minutes. Drainage removed on fifth day. Perineal wound healed on sixteenth day.

Present condition: Not determined.

CASE VII. D. McG., age sixty-three. February, 1904. Denies venereal. *Frequency:* Increasing during past year; now urinates about every two hours during day, four or five times during night. *Pain:* A tingling sensation at the corona glandis just after urination; catheterized once and told that he had an enlarged prostate. *Blood:* None. *Stream:* Starts with slight difficulty, comes easily after it is started, fair projection, but slight dribbling.

Examination: General condition good; vigorous health for a man of his years; no sclerosis; heart normal.

Local examination: External genitals normal.

Rectal examination: Prostate but slightly enlarged bilaterally; median raphe not increased; surface

smooth, normal consistency and sensitiveness. Bladder could not be catheterized with soft rubber catheter, but a Coudé No. 11 Fr. rotated to the left during its passage through the upper portion of the prostatic urethra. Residual urine, 6½ oz.

Urine examination: Slightly cloudy; normally acid; 1,020; albumin absent; urea, 3.2; sediment chiefly pus.

Cystoscopic examination: Determined that there was a slight bilateral lobe enlargement, but that the obstruction was due chiefly to a small median lobe.

Operation: Median perineal prostatectomy, two small lateral and middle lobes. Duration of operation, three minutes. Duration of etherization, twelve minutes. Perineal gauze drainage. Drainage removed on second day. Perineal wound healed on thirteenth day.

Present condition: Patient holds urine between four and five hours during day and occasionally does not urinate at all during night; urine practically normal.

CASE VIII. T. C., age fifty-nine. March, 1904. Gonorrhea at twenty-six. *Frequency:* Increasing for past three years; now urinates every one or two hours during day and four or five times during night. *Pain:* Dull pain in perineum after urination. *Blood:* None. *Stream:* Starts with difficulty, comes slowly, slight projection, small degree of dribbling.

Examination: General condition good; slight sclerosis; heart normal.

Local examination: External genitals normal except for a slight degree of varicocele on both sides.

Rectal examination: Prostate bilaterally enlarged moderate degree; median raphe not distinct; surface smooth, slightly harder than normal. Bladder catheterized by Bigelow evacuator, which rotated to the patient's left about 20° during its passage through the upper portion of the prostatic urethra. Residial urine, 9 oz.

Urine examination: Turbid; neutral; 1,020; albumin, a trace; urea, 2.8; sediment, chiefly pus, few large round and several small round cells (prostatic?), few abnormal blood corpuscles. Subcutaneous injection of 0.01 gm. phloridzin shows sugar to appear in fifteen minutes.

Operation: Median perineal prostatectomy, two lateral lobes and a fair-sized median lobe enucleated. Perineal gauze drainage. Duration of operation, two and one half minutes. Duration of etherization, ten minutes. Drainage removed on fourth day. Perineal wound healed on seventeenth day.

Present condition: Not determined.

CASE IX. J. A. M., age sixty-four. April, 1904. *Frequency:* Gradually increasing for five years; now passes urine every hour during day and seven times during night if he does not use catheter. For the past four years he has used catheter to draw his water two or three times during the day and as many times during the night. For the past four months there has been difficulty in introducing the catheter. *Pain:* At the corona glandis before and during micturition for the past four months there has been considerable pain during the introduction of the catheter. *Blood:* None. *Stream:* Started with such difficulty that he usually employed the catheter.

Examination: General condition poor; moderate sclerosis; slight myocardial changes.

Local examination: External genitals normal; large hemorrhoids.

Rectal examination: Both lateral lobes smaller than normal; smooth and harder than normal; median raphe not distinct; pronounced sulcus between the two lateral lobes at the top of the gland. Bladder catheterized with No. 14 Fr. soft rubber catheter. Residual urine, 5 oz. During the irrigation of the bladder the return flow stopped suddenly on several occasions and a stone searcher detected several small stones.

Urine examination: Purulent; foul odor; 1,012; large trace of albumin; urea, 2; sediment, chiefly pus, some normal and abnormal blood corpuscles and numerous small and large round cells.

Operation: Median perineal prostatectomy; two small lateral lobes enucleated; stones crushed and removed through the vesical orifice without injuring it. Penile drainage. Duration of operation, one and one-half minutes. Duration of etherization, six minutes. Drainage removed on twelfth day. The patient was very thin and the perineal wound closed and opened several times during the following four months. The patient returned nearly three years following the operation with symptoms of recurrent stone formation.

On Sept. 5, 1906, a perineal section was performed upon a grooved staff, and the finger, introduced through the vesical orifice, detected several bits of calcareous deposits; some adhered to the bladder wall on the posterior surface and a few free in the bar fond, which have diminished considerably in size since the prostatectomy.

In the anterior median line just in front of the anterior segment of the vesical orifice was a small bit of tissue, 1 cm. across its base and 4½ cm. in height. This was grasped by forceps and removed. Microscopic examination of this tissue showed it to be of prostatic origin and showed round cell infiltration on its surface. This bit of tissue, probably left at the time of operation, probably dropped over the vesical orifice and thus preventing bladder from emptying itself may have caused the residual urine and recurrent stone deposit.

In the region previously occupied by the prostate there were several small cicatricial bands running across the canal. This observation should lead one to believe that it is necessary to pass sounds upon patients for some time after the enucleation of the gland by this method. It is generally stated by surgeons that stricture in the region of the prostate after prostatectomy never occurs. This case, however, is an exception.

The patient was placed on penile drainage and the perineal wound healed in fourteen days.

Present condition: Perineal wound has remained healed. The patient holds his water from three to four hours during the day and passes it but once or twice at night. Residual urine but ½ oz. The cystitis is very much improved, but he still has bladder irrigation once a week.

CASE X. T. F., age seventy-two. April, 1904. Denies venereal. *Frequency:* Eight years ago had acute retention and was catheterized; since then has noticed gradually increasing frequency; has had complete retention several times during this period and has had to be catheterized. For the past six years has catheterized himself, because if he did not he would be attempting to urinate every few minutes during the day. Seven weeks ago was unable to pass catheter; was aspirated and then placed on siphon drainage, which was continued for six weeks. *Pain:* Occasionally after passage of catheter and always at the time of his retentions. *Stream:* Started with great difficulty, comes slowly, no projection, dribbling for several minutes.

Examination: General condition fair; moderate sclerosis; moderate myocardial changes.

Local examination: External genitals normal.

Rectal examination: Both lateral lobes enormously enlarged; the top of gland could not be reached; median raphe distinct in the lower half, obliterated in upper half; gland boggy and abnormally sensitive.

Soft rubber catheter No. 7 Fr. introduced into the bladder. Residual urine, 10 oz.

Urine examination: Color normal; 1,014; alkaline; slightest possible trace of albumin; urea, 1.51; sediment, considerable pus, many bacteria, few normal blood corpuscles and numerous epithelium cells, many crystals and amorphous urates.

Cystoscopic examination: During passage to cystoscope through the prostatic urethra it rotated to an angle of 90° to the right and there was considerable resistance in this portion of the canal; two large lateral lobes and a large median lobe detected; slight degree of cystitis.

Operation: Median perineal prostatectomy; enucleation of large median and lateral lobes. Perineal drainage with a Watson tube. Duration of operation, twelve minutes. Duration of etherization, twenty-two minutes. Drainage removed on the fifth day. A very small communication between the rectum and prostatic region was demonstrated when the bowels moved on the following day. The movement was hard and may have caused the rupture at that time. A penile catheter was introduced into the bladder and the rectum packed with iodoform gauze. The recto-urethral fistula closed five days later. The perineal wound was closed twenty-one days following operation.

Present condition: Passes urine three or four times during day and twice at night. He writes, "I am feeling as well as when I was twenty years old."

CASE XI. W. H. P., age fifty-two. October, 1905. Denies venereal. *Increasing frequency* and difficulty in urination for past four weeks; complete retention ten days ago. Catheterized twice daily until to-day, when physician could not make catheter enter. Considerable bleeding after attempts at catheterization with silver catheter. Delirium at night for past three days.

Examination: General condition excellent; no sclerosis; heart normal.

Local examination: Left testicle acutely swollen to size of lemon; blood issuing from meatus.

Rectal examination: Both lateral lobes equally enlarged; median raphe obliterated; surface smooth, gland boggy and very sensitive. Bladder entered with Bigelow evacuating catheter. A false passage was demonstrated at the tip of the prostate, running in front of it into the space of Ritzius. No urine obtained by catheter. Bladder contained large clots.

Operation: Staff introduced with difficulty; median perineal prostatectomy; medium sized lateral and small median lobe. Penile drainage. Duration of operation, six minutes. Duration of etherization, sixteen minutes. Perineal wound healed in eleven days.

Present condition: Holds urine four to five hours during day; does not urinate after retiring at night.

CASE XII. J. H., age fifty-eight. November, 1905. Denies venereal. *Frequency:* Increasing for past year and a half; acute retention four months ago and also three days ago. Catheterized with difficulty. *Pain:* During catheterization. *Blood:* After catheterization. *Stream:* Has started with increasing difficulty during past year; dribbles considerably.

Examination: General condition fair; no sclerosis; heart action not strong, a feeble systolic murmur.

Local examination: Both testicles slightly swollen and tender; hemorrhoids.

Rectal examination: Both lateral lobes equally and considerably enlarged; median raphe obliterated; surface boggy and very sensitive. Bladder catheterized with a soft rubber catheter, No. 16 Fr. Residual urine, 8 oz.

Urine examination: Slightly bloody; neutral; 1,020; albumin, large trace; urea 2%; sediment considerable, composed chiefly of pus, normal and abnormal blood, some squamous epithelial cells with pus adherent. Phloridzin test shows sugar to appear in fifteen minutes.

Cystoscopic examination: The obstruction was shown to be bilateral, with a small, broad, middle lobe. Two stones were detected.

Operation: Median perineal prostatectomy, lateral lobes only. Perineal catheter drainage. Duration of operation, five minutes; Duration of etherization, fourteen minutes. Penile drainage removed on the eighth day. Perineal wound healed on twenty-second day.

Present condition: Holds urine three hours during day and passes it two or three times at night. Urine still contains some pus.

CASE XIII. P. R., age seventy. December, 1905. Denies venereal. *Frequency:* Increasing for past twelve years. Has catheterized himself for past eight years; has been obliged to catheterize himself several times a day and many times at night during the past year. Now has difficulty in introducing catheter. *Pain:* Considerable before passing catheter, which relieves it. *Blood:* Occasionally after the catheterization. *Stream:* Used to dribble much; now can pass but a few drops without catheter.

Examination: General condition not good; considerable arterial sclerosis; marked *arcus senilis*; heart action fairly strong.

Local examination: Moderate sized inguinal hernia on either side; hemorrhoids; testicles atrophied.

Rectal examination: Both lateral lobes much enlarged; median raphe pronounced in lower half, absent in upper half; top of gland cannot be reached; surface smooth, hard and slightly sensitive. Bladder catheterized with a Coudé No. 10 Fr., which rotates about 40° to the right during its passage through the upper half of the prostatic urethra; here there is considerable resistance. Residual urine, 7 oz.

Urine examination: Cloudy; alkaline; 1,016; albumin, ⅛%; urea, 1.8%; sediment consists mostly of pus, squamous epithelium and large round cells, few hyaline and fine granular casts, with occasional fat adherent. Phloridzin, 0.01 gm., subcutaneously, shows sugar to appear in twenty minutes.

Cystoscopic examination: The obstruction was demonstrated as bilateral and median lobe; a vesical calculus was demonstrated; chronic cystitis.

Operation: Median perineal prostatectomy; large, lateral and median lobes. Perineal catheter drainage. Duration of operation, five minutes. Duration of etherization, ten minutes. Perineal wound healed in twenty days.

Present condition: Holds urine about two hours during the day and passes it from two to four times at night; irrigates the bladder daily because of existing cystitis.

CASE XIV. W. B. P., age fifty-nine. January, 1906. Admits syphilis at twenty-two. *Frequency:* Gradually increasing for past three years; now passes urine every hour during day and five or six times at night; had retention three months ago; in bed with continuous drainage for one week; bladder irrigation for two weeks following. Left testicle swelled at time of constant irrigation. *Pain:* Occasionally. *Blood:* None except at time of retention. *Stream:* Starts slowly, comes slowly, with but slight projection and dribbles for a minute or two.

Examination: General condition good; no sclerosis; heart normal.

Local examination: Left epididymis slightly enlarged, otherwise normal.

Rectal examination: Both lateral lobes moderately and equally enlarged; median raphe distinct in lower

two thirds, absent in upper third; surface smooth, slightly hard and less sensitive than normal. Bladder catheterized with Coudé No. 10 Fr. A distinct jump felt as catheter approaches vesical outlet. Residual urine, 8 oz.

Urine examination: Cloudy; alkaline; 1,018; large trace of albumin; urea, 2.8%; sediment chiefly pus. Phloridzin, 0.01 gm., subcutaneously, shows sugar to appear in fifteen minutes.

Cystoscopic examination: The obstruction shown to be bilateral and median bar; no stones; moderate cystitis.

Operation: Median perineal prostatectomy; fair-sized lateral and small median lobe. Perineal catheter drainage. Duration of operation, four minutes. Duration of etherization, twelve minutes. Perineal wound healed in eighteen days.

Present condition: Holds urine three to four hours during day and passes it twice at night; cystitis absent; urine almost clear.

CASE XV. L. L., age sixty-four. February, 1906. Denies venereal. *Frequency:* During past four years; now every half hour during day and about the same at night; five weeks ago had complete retention; relieved by catheter. *Pain:* During and after micturition at corona glandis; constant dull pain in back, both sides. *Blood:* None. *Stream:* Difficulty in starting; comes slowly and drops directly; considerable dribbling.

Examination: General condition only fair; edema about ankles and under eyes; marked *arcus senilis;* heart action not strong, but regular.

Local examination: External genitals normal; small hemorrhoids.

Rectal examination: Both lateral lobes much enlarged; no median raphe; surface smooth, boggy; increased sensitiveness. Bladder entered with soft rubber catheter, No. 12 Fr. Residual urine, 2½ oz. Bladder capacity, 4 oz. Slight bleeding after catheterization.

Urine examination: Cloudy; acid; 1,023; albumin, ½%, urea, 2%. Phloridzin, 0.01 gm., sugar appeared in twenty minutes. Sediment: pus, normal and abnormal blood, few hyalin and fine brown granular casts, with fat adherent, small amount of free fat, few renal cells, some with fat adherent, squamous epithelium.

Operation: Median perineal prostatectomy; fair-sized lateral and median lobes. Duration of operation, three minutes. Duration of etherization, eight minutes. Perineal catheter drainage. Perineal wound healed in eighteen days.

Present condition: Passes urine four to six times during day and two or three times at night. Urine still shows the same chronic renal changes.

CASE XVI. E. P. S., age sixty-three. March, 1906. Denies venereal. *Frequency:* Increasing for four years until a year and a half ago, when he had retention; since has been catheterizing himself, now several times a day and twice at night. Has recently had difficulty in introducing catheter. One week ago could not make catheter enter. Physician did suprapubic puncture and placed him on siphon drainage. Catheter still tied in. *Blood:* After attempts at catheterization, for past two months; much blood at time of retention.

Examination: Condition fair; slight *arcus senilis;* heart sounds distant, but regular.

Local examination: The epididymis on both sides slightly enlarged and tender; small inguinal hernia on right; left ring enlarged; hemorrhoids. Soft rubber catheter, No. 8, Fr., tied in.

Rectal examination: Both lateral lobes considerably enlarged, right the larger; median raphe absent; top of gland cannot be reached; surface smooth, a little boggy and tender.

Urine examination: Cloudy; slightly acid; 1,018; slight traces of albumin; urea, 3%; sediment consists mostly of pus and squamous epithelium. Phloridzin, 0.01 gm., sugar appears in fifteen minutes.

Operation: Median perineal prostatectomy, large right lateral and median left lateral and middle lobes. Stone felt by staff. Duration of operation, five minutes. Duration of etherization, thirteen minutes. Perineal catheter drainage. Perineal wound healed in twenty-four days.

Present condition: Not determined. Three months after operation was passing urine every three hours during day, and three times at night. Residual urine, 1 oz. Irrigating bladder once daily. Urine still contains some pus.

CASE XVII. J. S., age sixty-nine. March, 1906. Denies venereal. *Frequency:* Increasing for past seven years; now draws all urine with catheter, several times during day and five or six times at night. During past six months he had difficulty in introducing catheter. *Pain:* Across back constantly; over pubes and in perineum, most marked when time to pass catheter. *Blood:* Periods with blood in urine several times during the last four years, lasting several days; now has blood in the water occasionally after difficulty in passing catheter.

Examination: General condition fair; moderate sclerosis; heart sounds distant but regular.

Local examination: Testicles show atrophy; fair-sized right inguinal hernia; hemorrhoids.

Rectal examination: Both lateral lobes equally and considerably enlarged; median raphe absent; top of gland forms a sulcus; surface smooth, rather harder and less sensitive than normal. Bladder catheterized with a Bigelow evacuating catheter, which met a resistance in the upper part of the prostatic urethra, and the distal end of the instrument was depressed, suggesting a large median bar. The instrument detected a calculus. Residual urine, 3 oz. Bladder capacity, 5 oz.

Urine examination: Cloudy; alkaline; 1,016; albumin 1-10%; urea, 2.4%; sediment, much, consisting of pus, normal and abnormal blood, much squamous and large caudate cells, few hyaline and fine granular casts, many small, round cells (prostatic?), triple phosphatic crystals. Phloridzin, 0.01, subcutaneously, shows sugar to appear in twenty minutes.

Operation; Median perineal prostatectomy, large lateral and fair-sized median lobes; calculus size of walnut removed. Perineal catheter drainage. Duration of operation, six minutes. Duration of etherization, fourteen minutes. Perineal wound healed on twentieth day.

Present condition: Could not be determined.

CASE XVIII. R. M., age fifty-four. September, 1906. Denies venereal. *Frequency:* Increasing for past two years; now urinates every hour during the day and six or seven times during the night. *Pain:* Occasionally in perineum. *Blood:* None. *Stream:* Starts with increasing difficulty, comes slowly and is without projection; dribbles for about one minute.

Examination: General condition good; no evidence of sclerosis; heart normal.

Local examination: External genitals normal.

Rectal examination: Both lateral lobes enlarged, the left the larger; median raphe poorly defined; surface smooth, firm and not tender. Bladder catheterized with soft rubber catheter No. 14 Fr. Residual urine, 3 oz. Bladder capacity, 7 oz.

Urine examination: Slightly cloudy; acid; 1,018; albumin absent; urea, 3.5%; sediment small, con-

sisting of small amount of pus, many small round cells (prostatic?), a few squamous and large round cells. Phloridzin, 0.01 gm., showed sugar to appear in fifteen minutes.

Cystoscopic examination: Showed obstruction to be bilateral lobe encroachment; no stones; considerable reddening of trigone, otherwise bladder wall normal.

Operation: Median perineal prostatectomy, lateral lobes. Perineal gauze drainage. Duration of operation, two minutes. Duration of etherization, eight minutes. Perineal wound healed in sixteen days.

Present condition: Patient holds urine five hours during day and urinates but once at night; urine contains a few pus corpuscles.

CASE XIX. W. P. J., age sixty-one. October, 1906. Denies venereal. *Frequency:* Past eight months; most marked at night. *Pain:* In perineum just after urination; occasionally at corona glandis. *Blood:* None. *Stream:* Has started slowly; comes in fair volume and fair projection; dribbles a little.

Examination: General condition fair; moderate arcus senilis. Heart shows an organic systolic murmur; action regular.

Local examination: Both lateral lobes but slightly larger than normal; median raphe not distinct; surface of right lobe smooth; left shows a small nodule, size of a bean, deeply situated; gland abnormally hard and not sensitive. Bladder catheterized with a Coudé No. 10 Fr., which meets resistance in the upper half of the prostatic urethra. Residual urine, 3 oz. Bladder capacity, 9 oz.

Urine examination: Slightly cloudy; acid; 1,022; no albumin; urea, 3.2%; small amount of sediment, consisting of small amount of pus, some normal blood corpuscles, few small round cells (prostatic?), few squamous epithelial cells. Phloridzin test shows sugar to appear in fifteen minutes.

Cystoscopic examination: Cystoscope entered prostatic urethra easily; meets resistance in upper half and considerable pressure necessary to enter bladder; obstruction found to be more from the left lobe and probably some sclerosis of the vesical orifice.

Operation: Median perineal prostatectomy; after removing the two lateral lobes, the vesical orifice was found to be small and less pliable than usual; this was stretched and partially ruptured. Penile catheter drainage with No. 30 Fr. soft rubber catheter. Duration of operation, six minutes. Duration of etherization, sixteen minutes. Perineal wound healed in thirteen days.

Present condition: Passes urine every three to five hours during day and none during night, until recently, when he has been passing it once or twice during the night; urine practically normal.

CASE XX. A. C., age sixty-two. October, 1906. Denies venereal. *Frequency:* Increasing for past three years; now urinates every hour during the day and seven or eight times during the night. *Pain:* In perineum and at corona after urination. *Blood:* None. *Stream:* Starts slowly, flows in small caliber without projection and dribbles considerably.

Examination: General condition fair; moderate sclerosis; organ systolic cardiac murmur.

Local examination: External genitals normal.

Rectal examination: Both lateral lobes moderately enlarged; median raphe distinct in lower two thirds; surface smooth, firm, not tender. Bladder catheterized with a soft rubber catheter No. 14, Fr. Residual urine, 4 oz.

Urine examination: High; neutral; 1,018; slight trace of albumin; sediment, chiefly pus, some blood and triple phosphate crystals.

Operation: Median perineal prostatectomy, two median lateral and a small median lobe. Perineal gauze drainage. Duration of operation, four minutes. Duration of etherization, twelve minutes. Perineal wound healed in twenty days.

The patient gained control over the act of urination in a few days, and at the end of three weeks was holding urine four hours. No sounds were passed, and six weeks after operation the patient had complete retention of urine. No instrument could be made to enter the bladder, all meeting obstruction in the prostatic region. A perineal section was done and the prostatic region was found to be obliterated by adhesions. The finger was bored through these until the bladder was reached. The vesical sphincter felt normal. A No. 28 soft rubber catheter was passed to the bladder from the meatus and siphon drainage established for twelve days. Since sounds have been passed at regular intervals, so that the passage has remained patent and of large caliber. The patient, however, dribbles constantly and cannot hold more than 1 or 2 oz. of urine in the bladder.

CASE XXI. W. C., age sixty-four. October, 1906. Denies venereal. *Frequency:* Gradually increasing for past two or three years. Complete retention eighteen months ago, lasting ten days; catheterized. Another attack of retention one year ago; similar attack twelve days ago. Frequency between attacks of retention, every one or two hours during the day, four to six times during night. *Pain:* None. *Blood:* Only after catheterization on a few occasions during retention. *Stream:* Starts slowly, comes with fair force and projection; slight dribbling.

Examination: General condition critical; apathetic with septic appearance. Temperature 102.8°; pulse 120. Had been in bed two weeks. Bladder had become infected.

Local examination: Both testicles slightly swollen and tender.

Rectal examination: Both lateral lobes enlarged; no median raphe; surface smooth, boggy and tender. Bladder catheterized with a soft rubber catheter, No. 18 Fr. Residual urine, 8 oz.

Urine examination: Cloudy and full of foul detritus; 1,008; neutral; albumin, 1%; urea, 1.8%; cryoscopic freezing point, 1.6°; sediment, much, consisting of pus, normal and abnormal blood, much epithelium, especially squamous.

Operation: Median perineal prostatectomy, median lateral and small middle lobes. Perineal gauze drainage. Duration of operation, three minutes. Duration of etherization, ten minutes.

Present condition: Died three months after operation from septicemia and pyemia, following a phlebitis of the leg. The patient expressed his desire to die before operation, and certainly would have had bladder drainage not been established. Many times after operation he expressed a desire to die, made no attempt to help himself and refused nourishment and medication. The urinary system improved satisfactorily after operation, and death must be ascribed to the inroad of a mild infection in a person with greatly lowered vitality from lack of nourishment, rather than to operative interference.

CASE XXII. H. L., age fifty-two. November, 1906. Denies venereal. *Frequency:* Increasing for past two years. Three weeks ago retention lasting eight days; relieved by regular catheterization; now passes urine every hour or two during day; six to eight times during night. *Pain:* During and especially after the act in perineum, over pubes and at corona glandis. *Blood:* Several times during periods of retention, after catheterization. *Stream:* Starts slowly, comes in fair volume and projection at first, but then slowly and dribbles for about a minute.

Examination: General condition good; no evidence of sclerosis; heart normal.

Local examination: Old nodule in left epididymis, otherwise normal; hemorrhoids; left inguinal ring enlarged.

Rectal examination: Both lateral lobes enlarged, left more than right; median raphe distinct in lower half of gland, obliterated in upper half; surface smooth, a little softer and more sensitive than normal. Bladder catheterized with Coudé No. 10 Fr., which rotates about 10° to right during its passage through upper part of prostatic urethra, where there is also considerable resistance. Residual urine, 7.5 oz. Bladder capacity, 16 oz.

Urine examination: Slightly cloudy; neutral; 1,019; slight trace of albumin; sediment small, mostly pus, some normal and abnormal blood corpuscles, few caudate and small round cells (prostatic?), one hyaline cast; triple phosphate crystals. Phloridzin, 0.01 gm., shows sugar in fifteen minutes.

Cystoscopic examination: Obstruction shown to be bilateral and small middle lobe; a small calculus found.

Operation: Median perineal prostatectomy, fair-sized lateral and small middle lobe; stone removed without crushing. Duration of operation, five minutes. Duration of etherization, eleven minutes. Penile catheter drainage, Perineal wound healed in twelve days; reopened two days later and healed firmly eighteen days after operation.

Present condition: Passes urine every three to four hours during day and once during night. Some pus still in urine.

Case XXIII. M. H. D., age sixty. November, 1906. Denies venereal. *Frequency:* Increasing for past two years; now every three or four hours during day and once at night; last night, after a dinner party, acute retention. Catheterized. *Pain:* Constantly in perineum and at corona glandis since retention. *Blood:* Much after attempts to enter bladder.

Examination: General condition not good. Heart enlarged; loud systolic murmur and myocardial changes.

Local examination: External genitals normal; bleeding from meatus; hemorrhoids.

Rectal examination: Prostate enlarged laterally; no median raphe in upper half; surface boggy but smooth; not abnormally painful. Bladder catheterized with soft rubber catheter, No. 16 Fr. Residual urine, 16 oz.

Urine examination: Bloody; 1,016; albumin, ¼%; sediment considerable, mostly normal and abnormal blood and pus, some squamous, large and small round cells. Phloridzin showed sugar to appear in twenty minutes.

Operation: Median perineal prostatectomy. Perineal gauze drainage. Duration of operation, eight minutes. Duration of etherization, sixteen minutes.

Present condition: Passes urine three times during day and once at night.

Case XXIV. G. H. E., age fifty-five. January, 1907. Denies venereal. *Frequency:* Gradually increasing for past five years; now urinates from eight to twelve times during day and two to four times during night. *Pain:* In perineum for past week and also at corona glandis during and after micturition. *Blood:* None. *Stream:* Starts with considerable difficulty; small caliber; drops directly; dribbles much.

Examination: General condition fair; very nervous temperament; heart normal.

Local examination: Left testicle slightly atrophied, otherwise normal.

Rectal examination: Both lateral lobes enlarged, left the larger; no median raphe; surface smooth, harder and less sensitive than normal. Bladder catheterized with soft rubber catheter No. 10 Fr. Residual urine, 2 oz. Bladder capacity, 4 oz.

Urine examination: Color normal; 1,016; acid; no albumin; urea, 3%; sediment, small amount, consisting of few pus, normal and abnormal blood corpuscles, few squamous and small round epithelial cells.

Operation: Median perineal prostatectomy, fair-sized lateral and small middle lobe. Penile catheter drainage. Duration of operation, three minutes. Duration of etherization, nine minutes. Perineal wound healed on the tenth day.

Present condition: Passes urine once during night; does not hold it well during day. Had control eight days following operation and passed urine every four hours for four weeks; now dribbles during day. No residual urine.

Clinical Department.

GANGRENOUS GALL BLADDER IN AN UMBILICAL HERNIA.

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Mrs. J. G., age fifty, entered the hospital Nov. 6, 1904. Twenty-three years ago, during labor, the umbilical hernia first appeared. It has been gradually getting worse, but she has been able to work up to two weeks ago, when severe, sudden abdominal pain between the region of the umbilicus and the liver obliged her to go to bed.

Patient has had a chronic bronchitis of long standing.

Operation Nov. 8, 1904. On the right of, and just above, the umbilicus was found an umbilical hernia the size of two fists, containing omentum, intestine and the gangrenous gall bladder which contained twenty-seven stones and about 300 cc. of inspissated foul fluid resembling old bile. The gall bladder was removed. Patient's condition being very poor and fearing the peritoneal cavity had been infected from the sloughing gall bladder, the incision was not completely closed and three gauze handkerchiefs were packed into the wound in as many directions.

The dressing was changed daily. Three days after the operation one wick was removed; five days after the operation the remaining wicks were removed. Wound looked clean. Thirteen days after the operation wound healed. Dec. 18, patient was discharged wearing an abdominal supporter.

Feb. 11, 1907. Patient has just recovered from an attack of pneumonia, previous to which attack she had attended to her household duties and suffered very little inconvenience from the hernia since the operation in 1904.

Medical Progress.

HYGIENE.

BY CHARLES HARRINGTON, M.D., BOSTON.

(Concluded from No. 19, p. 612.)

INDUSTRIAL HYGIENE.

Hygiene of cigar making. — An editorial in the *Medical Record* (Aug. 18, 1906) calls attention to the fact that tuberculosis is a common disease of cigar makers, to the habit of the workers of moistening the end of the cigar when rolling the tip, and to another source of contamination that is not

so generally recognized, namely, that the cuttings and discarded fragments of leaf which fall to the floor, where they are spat upon and walked upon, are swept and sold. It quotes from an article in a recent number of the *Medico-Legal Journal*, by A. D. Stevens, in which is described a tour of inspection through a very large number of cigar factories. In one of the Southern States and adjacent islands he estimated that nearly one half of the cigar makers were tuberculous or syphilitic. The objectionable practice of finishing cigars with the aid of saliva was commented upon in the report on industrial conditions made by the State Board of Health of Massachusetts to the legislature of 1905, and again in its report of its investigations made during 1905 and 1906 to the legislature of 1907,[22] in which it is stated that in more than one third of the 134 cigar factories visited this practice obtains.

The hygiene of barber shops. — For the disinfection of brushes, combs, etc., Hilgermann [23] proposes the use of hydrogen peroxide solution (10 volumes) diluted one half with water. Brushes infected with staphylococci, streptococci, trycophyton, and favus were completely sterilized in thirty minutes. The action of the disinfectant is not interfered with by fatty matters and the same preparation may be used three times without losing its efficiency.

Industrial poisoning. — In Great Britain and Ireland, during the year 1906, there were reported in accordance with the provisions of the Factory and Workshops Act of 1901, 707 cases of industrial poisoning, against 663 for the preceding year. Of the number, 632 were due to lead, 4 to mercury, 5 to arsenic, and 66 to infection with anthrax. The figures for 1905 were respectively 592, 8, 1, and 59.

Poisoning due to dyed silk. — A correspondent of the *British Medical Journal*, of Nov. 10, 1906, calls attention to the danger of lead poisoning from handling black silk which has been impregnated with lead salts to improve its lustre and increase its weight (being sold by the pound). Not only do the hands come in contact with the lead compound, but a considerable proportion of the substance is given off as dust into the air in which the workers are employed from eight to ten hours. Thus chronic lead poisoning is easily produced.

Hygiene of the textile industry. — In Blackburn, England, there are 128 cotton mills. In 1901 these employed 38,551 persons, or 38% of the population above nine years of age. Of this number (14,518 males, 24,033 females) 70% were engaged in weaving, 18% in winding and warping, 6% in spinning and 5% in carding. According to Dr. Alfred Greenwood [24] the mortality statistics for the fifteen years, 1891–1906, show that the death-rates for each age-period among the four main groups of these operatives have diminished; that the rates among the weavers from fifteen to fifty-five years of age have diminished excepting among women of forty-five to fifty-five years, and have been lower than those for the whole population of the borough since 1891, and that the death-rates from consumption have shown a steady decline except among weavers of forty-five to fifty-five years; and that the death-rates from other respiratory diseases also have shown a marked progressive improvement during each of the last three quinquennial periods. These results are attributed to improved sanitary conditions both at the mills and in the operatives' homes.

According to Mr. F. S. Conn,[25] these mortality returns clearly demonstrate the very great value of the Cotton Cloth Factories Acts of 1889 and 1897, now incorporated in the Factory and Workshops Act of 1901. The Factory Inspector shows that the requirement for better ventilation alone affects upwards of 16,000 operatives in Blackburn, and that whereas prior to 1898 it was the practice to exclude fresh air from the weave sheds as much as possible during a considerable portion of the year, on account of its detrimental influence on the process of weaving, improvements have been made which without injury to the process permit of supplying 4,000 cubic feet of air per capita per hour.

Some of the larger employers have gone much farther than the law requires and their managers say that the improvements have not only reduced sickness, but have improved the output. The Inspector of Cotton Factories says that improved health conditions almost invariably lead to better work and pay well commercially.

Anthrax and horsehair. — Between 1889 and 1905 there were reported [26] from the horsehair and bristle factories of Bradford alone, 77 cases of anthrax, 56 in males and 21 in females, with a mortality of 18 (23%). Most of the cases were traced to horsehair and bristles from abroad; 25, and perhaps 16 others, were traced to mane hair from China. Siberian and Russian hair is often infected. Hair can be disinfected by steam at 220° F. without injury, but at 246° F. it is made brittle and inelastic. In Germany, anthrax has decreased since 1899, when it was provided that all horsehair and bristles should be boiled in water for two hours, or in 2% potassium permanganate solution for fifteen minutes, with subsequent bleaching with 3% to 4% sulphur dioxide.

From a letter from the Vienna correspondent of the *Journal of the American Medical Association*, printed in the issue of March 30, 1907, the following is taken: "An outbreak of anthrax occurred quite recently in one of the hair factories here, and of the 6 cases affected, 4 proved rapidly fatal. Investigation showed that all 6 patients had been working in the same room, and the material used by them could be traced to a Russian bale of goods. Immediately work was suspended in the factory, and very exhaustive measures were adopted to have the premises and the goods disinfected thoroughly. At the same time the inspectors of the slaughtering houses were advised to keep up very strict supervision of their respective districts, with the result that a case of anthrax was found in a group of twenty-seven cattle. The necessary measures were thereon instituted and the carcass of the animal burned.

As regards the treatment of the affected factory hands (4 male, 2 female), the first four patients were beyond any hope of recovery when brought to the hospital. The disease had not been recognized by the medical man in attendance; the other two patients were treated in time by excision simply and they recovered. The necessity of international notification of similar outbreaks has now been proved *ad oculos*. In quiet times this would hardly have occurred, but the civil disturbances in Russia have brought it about that infectious material is exported."

Smoke and lung disease. — L. Ascher [27] asserts that smoke is responsible for much of the increase in the amount of acute diseases of the lungs observed in various countries. In East Prussia, in the rural districts, the infantile death-rates from non-tubercular respiratory diseases is one third of that of the industrial centres of the Rhineland and Silesia, where the miners' death-rate from the same diseases is 135% higher than in the whole of Prussia. He experimented on rabbits with soot, and states that this substance paves the way for the tubercle bacillus as well. The rabbits exposed to much smoke died at twice the rate of those exposed to small amounts.

Wood alcohol poisoning from varnish. — An unusual case of poisoning by wood alcohol is reported by Dr. H. Gifford.[28] After working about four hours in a room of 1,800 cubic feet capacity, tightly closed so as to keep out dust, applying to the woodwork first a stain and then a varnish, both made with wood alcohol, a man became absolutely blind, but had no other symptoms of poisoning. After a week, vision began to return, but after a few weeks it began to fail again, and in six months he was quite unable to see. Very slow improvement began again, and in about a year he was able to find his way about the streets.

DISINFECTION.

New method for formaldehyde disinfection. — In place of the usual methods of formaldehyde disinfection, which are expensive on account of the amount of alcohol required, dangerous on account of the possibility of fire and slow in disengaging the gas, Eichengrün [29] advises the use of a compound of paraform and metallic peroxides (barium and strontium), which he calls "autan." It comes both in the form of powder and in tablets. On being wet with water, a mixture of paraform and peroxides gives off formaldehyde more or less quickly, according to the proportions of the ingredients. If they are present in equal amounts the powder on being mixed with twice its weight of water explodes with violence; but as prepared, it gives off the gas quickly, but with no explosion. Selter [30] states that the action is so rapid, and the room is filled so quickly, that it is hardly necessary to do more than close the larger ventilating openings. In his experiments, using as test objects staphylococci, anthrax spores and fresh tuberculous sputum, the results were good, although a few staphylococci and many anthrax spores survived.

Wesenburg [31] conducted a series of experiments, in which he used as tests, old library books, staphylococcus aureus, anthrax spores, colon and typhoid bacilli, and pus (*St. aureus* and *B. pyocyaneus*), with good results. He used an ordinary kettle, in which he placed 1,000 gm. of autan, upon which he then poured 900 cc. of water. Not only was the gas given off rapidly, but the air of the room was quickly saturated with aqueous vapor. From his results he concludes that complete disinfection may be expected from the use of 1.4 kilo of autan per 50 cubic meters of air space, with exposure for six to seven hours.

He recommends the process as particularly adapted to the disinfection of closets, wardrobes and other small spaces, with their contents. It is perfectly safe and very simple, there being no danger of fire and no need of any apparatus beyond a pail or tub and a stick with which to stir the mixture with water. The material is put up in tin cans for rooms of different cubic capacities, and each can is accompanied with an "ammonia generator" containing ammonium chloride. The strongly alkaline residue in the can is treated with water, the ammonium salt is poured into it and the resulting ammonia neutralizes the formaldehyde gas after the desired period of exposure.

With the suggestion of Eichengrün, Selter and Wesenburg, that it is unnecessary to make a room as air-tight as possible, Dr. A. Nieter [32] does not agree. He finds the advantages of the process to be its simplicity, the freedom from danger of fire, and the possibility of a number of disinfections going on simultaneously under control of a single official. On the other hand, a distinct disadvantage is the high price of the material.

Disinfection of feces. — To determine the penetrating power of certain disinfectants in contact with solid feces, Dr. M. Kaiser [33] experimented with 5% and 10% solutions of caustic soda, 20% suspension of slaked lime (milk of lime), and 5% and 10% solutions of liquor cresoli saponatus (German pharmacopeia). The caustic soda solutions gave the best results, since they softened and broke down the masses much more rapidly than the others. With feces broken up with a spatula and then covered with the disinfectant, the caustic soda solutions were again very much more efficient, for growths were obtained after twenty-seven hours' contact with the 10% cresol preparations, and six hours' contact with milk of lime, while negative results were obtained after four hours' contact with 10% caustic soda. Even the most solid feces, if not larger than 1 cm. in diameter, were sterilized by three hours' contact with 15% caustic soda. He suggests a preliminary treatment for two hours with cresol soap or caustic soda, and then, after the feces are broken up with a spatula, an additional exposure for several hours.

Disinfectant properties of silver compounds. — The various silver preparations in common use have been studied by C. R. Marshall and E. F. Neane [34] who report that argyrol and collargol have practically no bactericidal power, nargol has some power, and actol, itrol, argentol, argonin,

argentamine, ichthargan, novargan, largin, protargol and the nitrate and fluoride possess it to a marked extent. The percentage of silver present in combination is no criterion of the germicidal power of any given preparation. Indeed, the least powerful contains the highest proportion (86.6%), and certain of the best contain the least.

Naphthol preparations in disinfection. — Both alpha- and beta-naphthol possess very marked bactericidal power, but their very slight solubility in water has made them unavailable for general use. Attempts to introduce beta-naphthol in the form of its soluble sodium compound have come to naught, because by the influence of light and air the compound is converted into an insoluble inert substance. Schneider [35] found that equal parts of beta-naphthol and dried sodium carbonate, thoroughly mixed, can be employed to advantage, the carbonate promoting the solution of the naphthol in water without forming with it a new compound. A 1% solution of this mixture killed in ninety-six hours dried anthrax spores which resisted the action of 5% lysol for ten days; and a slightly stronger solution (1.50%) destroyed them in seventy-two hours. Against typhoid organisms and staphylococci the mixture proved to be about twice as powerful as lysol, which is a solution of cresol in soap, produced from tar oil and linseed oil or other fat, saponified with caustic potash and alcohol. It contains usually about 50% of cresol.

Poisoning by lysol. — At the meeting of the Prussian Society of Medical Officers, held in Berlin, in April, 1906, Dr. Arthur Schultz reported that, in 1904, lysol was the chief agent used by suicides, and that, in Berlin, scarcely a day passes without at least one newspaper report of a death caused by its use. Dr. F. Blumenthal [36] states that about 100 cases come to treatment in Berlin every year. No antidote is known, but if the victim does not die within twenty-four hours, recovery without serious after-effects is probable. As a rule the pathological appearances are too slight to account for death, and hence one must regard the substance as a cardiac and nerve poison. As treatment he recommends washing out the stomach until the washings no longer smell of the substance; and as the contained cresol has an affinity for fat, the washing process can best be done with milk. For the heart, stimulants are recommended. Dr. F. Hirschberg [37] describes the clinical history and anatomical findings of 24 cases which have come under his observation, and proposes prohibition of the custom of sending out free samples of disinfectants until their harmlessness has been proved.

A new disinfectant. — Metakaline, a compound of hard soap and potassium metacresolate, is found by Dr. G. Wesenberg [38] to possess great germicidal powers. In .5% solution it is effective against the common pathogenic bacteria within a few minutes, and is absolutely non-irritating.

ACTION OF SUNLIGHT ON PATHOGENIC BACTERIA.

The generally recognized freedom from infection by the common pathogenic bacteria enjoyed by the natives of the torrid zone is explained by Martin [39] as not due to natural immunity but to the lack of the infecting agents, which are shown by him to succumb very quickly to the action of the sun's rays, and perhaps to the extreme diurnal variations in temperature — nearly 70° difference between noon and nightfall. Examinations of the soil and of the air revealed the presence of non-pathogenic bacteria in comparative abundance. In this connection, certain experiments on the action of the sun's rays on *Bacillus tuberculosis* by J. Weinziel [40] are of interest. He made direct exposures of cultures of *B. tuberculosis* and other organisms on glass or paper and found that with no protection the former were destroyed in about ten minutes and *B. coli* and other non-spore-bearing species in from two to ten minutes.

COPPER SULPHATE AND MOSQUITOES.

A series of experiments on the action of copper and of copper salts on mosquito-breeding led Dr. J. H. Ford, U. S. A.,[41] to the following conclusions: Copper sulphate in 1: 100,000 solution is prejudicial to the development of culex larvæ into pupæ, but has little influence in preventing the emergence of the imagines from mature pupæ. In 1 : 500,000 strength it appears to have a temporary influence upon the development of mature larvæ, but is toxic to those which do not respond to this stimulus in the first three days. In 1 : 1,000,000 strength it has no toxic effect on pupæ and but slight, if any, effect on larvæ. Metallic copper appears to have little or no influence.

FORMALDEHYDE IN THE ATMOSPHERE.

The first to mention formaldehyde as a normal constituent of the air was Henriet, who asserted that it is present to the extent of 2 to 6 gm. per hundred cubic meters. According to A. Trillat,[42] however, not only are these amounts impossible, but the gas is present merely as an impurity, being a constituent of smoke. In the air of one district of Paris, Trillat found from .024 to .031 gm. per hundred cubic meters, and he has found as high as .055 elsewhere (Courbevoie). In a kilogram of soot he found [43] 3.5 gm., and by burning a kilogram of refined sugar in the air and in a stove, he obtained from the resulting smoke, 5.2 and 30.0 gm. respectively. From the air at different heights from the street level he found [44] widely different amounts of the impurity. He shows [45] also that it is formed in varying amounts in the incomplete combustion of all kinds of material, and that exposure to the smoking process is in effect carrying out disinfection.

HYGIENE OF GAS STOVES.

Among the conclusions reached from a series of tests of gas stoves, conducted under the auspices of the Coal Smoke Abatement Society [46] are the following:

A properly constructed gas stove with a sufficiently large flue is quite as satisfactory from a hygienic point of view as a coal fire and does not

vitiate the air nor produce any abnormal drying effect as is popularly supposed. It is quicker in results, more easily regulated, and the temperature of the room is controlled in a way which is not possible with coal fires. The flueless stove on the other hand, while very economical of gas, discharges large volumes of carbon dioxide gas into the room, and if anything goes wrong with the flame and the combustion becomes imperfect, it pours out in addition the poisonous products, which, in the case of the flue stove, are discharged into the chimney. On account of the beneficial effect which they were capable of producing on the rate of ventilation, it is recommended that gas stoves should have their flues provided with independent inlet openings for air.

According to Dr. John S. Owens,[47] in tests of 25 different kinds of gas stoves, including 5 without flues, each test lasting eight hours, and the rooms having about 8,000 cubic feet capacity, with unplastered brick walls, the carbon dioxide content never rose to more than 9 parts per 10,000 except in the case of flueless stoves, of which two caused more than 30 per 10,000. Carbon monoxide was detected in but 3 cases; one was a flueless stove, and another a flue stove found to be faulty. A good many of the stoves produced a smell in the room, from "very slight" to "strong and unpleasant." Only 12 were noted as producing no smell.

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Book Review.

Talks to First Year Nurses. By ALFRED T. HAWES, M.D. Illustrated. Boston: Whitcomb & Barrows. 1907.

This small book of 191 pages, including an index, is designed to give nurses information sufficient to understand the general condition of their patients and to carry out their work intelligently. The book is extremely elementary, and herein lies its chief merit. A common failing in textbooks for nurses is to go so far into medical matters that the book becomes rather a description of the elements of medicine than a statement of facts which a nurse should know. The author has certainly not fallen into this error.

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THE VALUE OF THE OPSONIC INDEX.

DURING the past year a number of laboratories in this country, under the stimulus received from Sir Almroth Wright at the time of his visit, have been investigating the opsonic index in various conditions. These workers have engaged in this study with an enthusiasm born of the magnetic personality of Wright and the numerous reports of the brilliant results obtained from vaccine therapy when guided by estimations of the opsonic index. This enthusiasm has been tempered by the calm judgment and critical spirit inculcated in these workers by their previous extensive experience in laboratory investigation. It was, therefore, with particular interest that the symposium on the opsonic index was listened to, at the meeting in Washington of the Association of American Physicians, since it presented the results obtained during the past year by these different laboratories.

The combined judgment of the American investigators represented at this meeting seems to have considerably discredited the importance of the opsonic index. Speaker after speaker expressed the view that there were many possibilities of error inherent in the method, and that the variations that resulted might be great. Under these circumstances, the results of estimates of the opsonic index should be interpreted with great caution. Some even went so far as to state that they believed that a determination of the opsonic index was of very little value. A few favored opsonic estimates, but the mass of opinion was far more against than in favor of the index. Possibly the pendulum has swung too far, but these opinions coming from such sources cannot be neglected. The future may give us a better

method of estimating body resistance than that of determining the opsonic index as now practised. This will probably be the case for, notwithstanding unfavorable criticisms of the opsonic index, the value of bacterial vaccines as a therapeutic measure in many conditions was fully recognized, though not especially discussed. Some measure of this action is needed and if discovered will aid much in treatment. Work along the lines of the opsonic index should then be continued, but it seems to us that this should be more in the nature of laboratory investigation than as a clinical procedure. On the other hand, vaccine therapy along the lines already established should continue to be practised and from it good results are to be expected in many patients.

THE DIAGNOSIS AND PROGNOSIS OF PRIMARY ACTINOMYCOSIS OF THE CENTRAL NERVOUS SYSTEM.

It has generally been conceded that the diagnosis of primary actinomycosis of the central nervous system is an impossibility, and even in cases of secondary invasion one rarely arrives at the correct conclusion, for the simple reason that the primary focus may have disappeared a long time previously, while in other cases it has been passed by unnoticed and is only recognized at autopsy. Usually a cerebral neoplasm or hemorrhage, tuberculous or cerebrospinal meningitis is diagnosticated, or at least, suspected, and it would seem impossible to come to an exact conclusion as to the nature of the affection. Such difficulties become insurmountable when the disease is primarily located in the brain. A primary visceral focus, such, for example, as in the lung, has some chance of being diagnosticated by the examination of the sputum, which may reveal the presence of the specific organism, but in the case of the brain no such definite means are known enabling one to determine the nature of the causal agent.

At the present time, however, it cannot be absolutely said that the diagnosis of a primary localization of the actinomyces in the brain cannot be made, because, as illustrated in a patient presenting the symptoms of a cerebral neoplasm, Monod, having removed a certain amount of cerebrospinal fluid by lumbar puncture, found the typical organisms of actinomycosis and the lesion was confirmed by direct examination later on. It is rather astonishing that this diagnostic measure has not generally been resorted to; in those cases of cerebral actinomycosis which have been published, it is not mentioned excepting in a recent case reported by Pearce, where, however, the examination was negative. A positive result in all cases naturally must not be anticipated, for the simple reason that certain conditions must be present in order that the presence of the actinomyces in the cerebrospinal fluid may be recognized. The cerebral abscess or neoplasm must be in direct relationship to the ventricular cavities, and, on the other hand, if the case is one of secondary infection, the parasite is generally not long in disappearing. It, therefore, may be said that the examination of the cerebrospinal fluid is the only key to the diagnosis which we now have. This means is not infallible, but lumbar puncture may give rise to very important knowledge from the diagnostic point of view and should be resorted to, even several times if necessary, since at the same time it may also serve as a therapeutic measure.

Writing in 1902, Duvau asserted that there never had been a recovery from cerebral actinomycosis, and as far as we are aware no case has occurred since this date which would change this statement. No matter what may have been the localization of the parasite, no matter how minute may have been the lesion, death has always resulted more or less rapidly. The neoplastic type has given the longest lease of life, Bollinger's case having lived a year from the time of the first appearance of the symptoms. The suppurating type has a much more rapid evolution. If the suppuration is distinctly circumscribed, the patient may have some chance of living if surgical treatment is undertaken in time, because, by evacuating the pus, an improvement of the symptoms may occur. This was the case in Keller's patient, who lived nearly a year after surgical interference, but in cases of diffuse suppuration, death occurs within a few days. The prognosis of the medullary type is quite as bad.

The exhibition of potassium iodide, which is certainly the specific remedy of the disease, has been useless in the cerebral forms, so that a symptomatic treatment should be undertaken in order to reduce the sufferings of the patient, and lumbar puncture, by diminishing the intracranial pressure, has given good results in this direction.

THE WEIGHT OF THE SOUL.

It is no doubt well to keep our minds open to new hypotheses and to weigh evidence, however bizarre it may be, with what knowledge we have. We confess, however, that it is a considerable shock to our sensibilities to read, in a recent

number of *American Medicine* (April), an article which seriously discusses the question of the weight of what we are accustomed to call the soul, or, more technically speaking, that part of the conscious personality which may survive death. Under the title, "Hypothesis Concerning Soul Substance, Together with Experimental Evidence of the Existence of Such Substance," Dr. Duncan MacDougall, of Haverhill, Mass., attacks this question as a problem capable of being solved by mechanical means. It does not concern us, at present, to discuss the metaphysical conceptions and arguments which Dr. MacDougall advances as a basis for his research. He conceives that modern science forces us to the assumption that soul substance is presumably a form of gravitative matter and, therefore, capable of being detected at death by weighing a human being in the act of dying. To accomplish this end, the bed upon which the patient lay was arranged on a frame work resting upon very delicately balanced scales. Six persons were observed immediately before death and immediately after death by means of this apparatus. The essential result of the experiments showed, according to the deductions of the author, that a loss of substance occurs at death not accounted for by known channels of loss. If this latter fact could be proved, and here naturally lies the crucial difficulty, the query arises, Is this loss of weight, amounting to an ounce, more or less, due to the soul substance which at that moment leaves the body? Dr. MacDougall is not dogmatic, but he is inclined to think that an affirmative answer should be given to this query. We take the liberty of reserving our opinion, at least until the experimentation has covered many more cases than are at present available. The solution of this great riddle has been attempted by various means since men began to think, but we question whether so ingenious and yet so simple a method has before been devised to attempt the demonstration of the persistence of the individual after death. Dr. MacDougall deserves credit for his ingenuity and scientific spirit, but surely in such a matter a conclusion should not be hastily drawn. We await further experiments with interest and skepticism.

GREAT FRENCHMEN.

A *plébiscite* has, perhaps, oftener than not, been characterized by lack of wisdom, especially in France. Recently, however, there was a vote of and by the people on the question of the relative pre-eminence of great Frenchmen of the last century, and the physician and the scientist must view the result with much approbation. The balloting was held under the auspices of the *Petit Parisien*, one of the most widely circulated of French newspapers, and one representing very well the average opinion in that country. By this vote —fifteen million answers were received — one may judge whom the French people consider to be their great men and what their idea is of civic duty as well as of intellectual and moral distinction. Only those observers, declares the Paris correspondent of the London *Times*, who have intimately studied the evolution of the French mind and feeling over an unbroken series of years can comprehend the profound transformation which the Republican school system and stable Republican government in general have effected in the view points of the present generation of Frenchmen.

Pasteur, who declared that it is in human power to banish from the earth all infectious diseases and who opened the path to such a result, led the list with 1,338,425 votes. Next came Victor Hugo, whose greatest novel strongly enlisted sympathy in behalf of the nether world. The great Napoleon came fourth. Seventh in the list was Curie, the discoverer of radium; and the ninth was Roux, Pasteur's co-worker. Following him came Parmentier, the introducer of the potato in France, and then Ampère, the father of dynamic electricity. After Brazza, Zola and Lamartine, Arago, the astronomer and physicist, occupied the fifteenth place. Sixteenth came Sarah Bernhardt; and immediately after her Waldeck-Rousseau, and then MacMahon. Next came President Carnot; and twentieth, Chevreul, the centenarian chemist, and so on through five hundred and two names. This showing must be most pleasing to those who wish well for humankind, demonstrating as it does a tendency to honor above others those who have lived their lives, not as destroyers of men and of institutions, but in behalf of human health and happiness.

REAPPOINTMENT OF DR. HENRY P. WALCOTT.

FEW men in this community have been so closely identified for many years with important state affairs as Dr. Henry P. Walcott, of Cambridge. It is gratifying that the governor has recently reappointed him to the important post of chairman of the State Board of Health, a position which he has for many years held with conspicuous ability and public spirit. The high position which the Massachusetts State Board of

Health has taken is due in no small measure to the disinterested leadership of Dr. Walcott, whose intelligent interest in matters of public sanitation has been widely recognized for forty years.

MEDICAL NOTES.

A Centenarian. — Mrs. Josephine W. Kroll has recently died in New Orleans at the reputed age of one hundred and five years. She is said to have attended receptions at the White House and assisted in its restoration after its burning by the British in 1814.

Large Damages for the Loss of a Leg. — It is stated that a New York jury has recently rendered a verdict of $35,000 for the loss of a leg. The plaintiff was a young woman fond of dancing and athletic sports. The defendant was the New York Central Railroad. The plaintiff's appearance in court, crippled, combined with her natural beauty, is reported to have had an appreciable effect on the jury.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 15, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 45, scarlatina 26, typhoid fever 4, measles 51, tuberculosis 48, smallpox 0.

The death-rate of the reported deaths for the week ending May 15, 1907, was 19.66.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, May 11, 1907, was 242, against 226 the corresponding week of last year, showing an decrease of 16 deaths and making the death-rate for the week 20.96. Of this number 127 were males and 115 were females; 233 were white and 9 colored; 153 were born in the United States, 86 in foreign countries and 3 unknown; 52 were of American parentage, 167 of foreign parentage and 23 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 57 cases and 3 deaths; scarlatina, 26 cases and 1 death; typhoid fever, 6 cases and 1 death; measles, 40 cases and 1 death; tuberculosis, 37 cases and 11 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 29, whooping cough 1, heart disease 33, bronchitis 10 and marasmus 3. There were 15 deaths from violent causes. The number of children who died under one year was 37; the number under five years 51. The number of persons who died over sixty years of age was 54. The deaths in public institutions were 75.

There were 15 cases and 10 deaths reported from cerebrospinal meningitis during the week.

Address by Dr. Frederick C. Shattuck. — It is announced that the address at the commencement exercises of the Yale Medical School will this year be delivered by Dr. Frederick C. Shattuck on the subject, "The Art and Science of Medicine."

Bequests. — Among the many bequests of the late John C. Haynes, the following are of medical interest: $1,000 to the New England Hospital for Women and Children; $1,000 to the Perkins Institution for the Blind; $2,000 to the Home for Aged Couples; $5,000 to the Massachusetts Homeopathic Hospital, — all Boston institutions.

A Protest against Insurance Fees. — It is announced that the members of the Worcester, Mass., District Medical Society at a recent meeting unanimously adopted resolutions denouncing the recent reduction in examination fees from insurance companies from $5 to $3. The members of the society agree to decline making examinations for the reduced fee or to accept the position of examiner from which any member of the society had been removed.

Popular Science. — The following conversation is reported:

After listening for an hour to the remarks of Professor Chittenden at a Lowell lecture in Boston, illustrating the value of proteids for the system, two women were leaving Huntington Hall when one, turning to the other, said, "Grace, are oranges proteids?"

"I don't know what proteids are," said the other, "but I shall always eat them in the future."

Centenarians. — Stephen E. Boynton, of South Deerfield, Mass., died May 9 at the reputed age of one hundred and four years. For a year he has been feeble, but remained active up to his one hundredth year. Until recently Mr. Boynton had been able to recall the events of the war of 1812.

Benjamin Warner, said to have been one hundred and one years old, died in Woodstock, Conn., last week.

Reappointment of Dr. Austin J. Peters. — It is a matter of congratulation that Governor Guild has renominated Dr. Austin J. Peters to the position of chief of the Massachusetts Cattle

Bureau. This reappointment has an added significance from the fact that it is a ratification of Dr. Peters' recent vigorous enforcement of the law regarding the treatment of dogs in this state. It will be remembered that opposition to his policy in relation to the suppression of hydrophobia has recently been manifested by certain interested persons and associations.

THE EIGHT-HOUR LAW AT STATE HOSPITALS. — The amended eight-hour law passed by the last Massachusetts Legislature placed the state institutions in a somewhat difficult position regarding their expense account. Through a recent rendering of the law by the Attorney-General, it appears that domestic service at the various hospitals will be hampered by the application of the new law, inasmuch as cooks, maids and other servants are included in the meaning of the law and cannot be required to work more than eight hours a day, and that the employment of domestics on an hourly basis is not permissible. It, therefore, appears that the law is far reaching in its effect, and it is evident in certain sorts of work will mean a decided increase of the expense of maintenance.

NEW YORK.

GIFT TO PRINCETON UNIVERSITY. — It is announced that Princeton University has received from donors whose names are at present withheld a gift of $1,200,000, for the erection, equipment and maintenance of scientific laboratories, one of which is to be devoted to biological work.

DECREASE OF TRACHOMA. — It is gratifying to learn that trachoma among the public school children is rapidly decreasing. As the result of a report made on May 1 to the Health Department by Dr. Herbert W. Wootton, one of the ophthalmologists of the board, President Darlington announces that the number of cases has become reduced from 15,000 to 8,700. He also advocates additional accommodation for the operative treatment of the disease among the children.

AN LL.D. FOR DR. JOSEPH D. BRYANT. — The corporation of the New York University has conferred the degree of Doctor of Laws upon Dr. Joseph D. Bryant, president-elect of the American Medical Association. Dr. Bryant, who was graduated from Bellevue Hospital Medical College thirty-nine years ago, has held a professorship first of anatomy and then of surgery, for twenty-nine years in that school and in the reorganized New York University and Bellevue Hospital Medical College. Only two of the present professors in the faculty of the college, Drs. Edward G. Janeway and A. Alexander Smith, outrank Dr. Bryant in their term of service.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. APRIL 27, 1907.

1. *WALLS, F. X. *Digestion of the Proteids of Cows' Milk.*
2. *COOPER, C. M. *Correlation of Clinical and Radio-Diagnostic Findings.*
3. *THOMAS, H. M., and GREENBAUM, H. S. *Multiple Neuritis (non-diphtheritic) in Children.*
4. *GELLHORN, G. *A New Mode of Treatment for Inoperable Cancer of the Uterus by Acetone.*
5. *HOWARD, C. P. *Myxedema.* (*Concluded.*)
6. COLEMAN, F. *Electricity in Ophthalmic Practice.*
7. JORDAN, W. M. *Toxemia of Pregnancy.*
8. BALLANTYNE, J. W. *Influence of the Mother's Health in Pregnancy on Her Unborn Child.*
9. *WOOTTON, W. T. *Surgical Anesthesia with Special Reference to Post-anesthetic Nausea and Vomiting.*
10. GORDON, A. *The Function of the Prefrontal Lobes.*
11. *SCHOTT, T. *Acute Overstraining of the Heart.*

1. Walls' statements if confirmed will shake to their foundations the present accepted principles of the percentage feeding of infants. The indigestibility of the proteids of cows' milk, which hitherto has been considered the great difficulty to be overcome in preparing substitutes for human milk, according to Walls, does not exist. The formation of large curds, which occurs in test-tube experiments, he believes to be prevented in actual digestion by the movements of the infant's stomach. The so-called curds which appear in infant stools he has shown by examination to be composed of fats or fatty soaps, bearing absolutely no relation to proteid materials. These lumps, he says, can be made to disappear from the stools by diminishing the fat of the milk, and in over 200 cases in which undiluted fat-free milk was given and the stools carefully examined no curds were found. Walls maintains that no digestive disturbances can be traced to the albuminous materials in cows' milk, whereas excess of fats is the commonest cause of such disturbances. He concludes, therefore, that in sterile fat-free milk we possess an unequaled therapeutic agent in the treatment of the nutritive disorders of infancy. This is not, however, advised in the feeding of normal infants. In these whole milk is to be given, diluted at first with two parts of water, in feedings not oftener after the first week than once in four hours during the day and twice in the night. As the age increases the dilution can be lessened, until by the sixth month undiluted cows' milk can be given.

2. Cooper reports many interesting observations by means of the x-ray which point out important lessons in clinical diagnosis. Observations of the diaphragm have shown that exact study of the outlines of the lungs by percussion is too often omitted. Centrally located consolidation, tubercular or pneumonic, may often be found by x-ray when it cannot be detected by physical signs. In examining cases when the x-ray revealed such conditions, Cooper has found that perceptible changes are more commonly present in *percussion resistance* than in percussion note. Peribronchial glandular enlargements and interlobar empyema may also be found only by x-ray; aneurism, however, should almost invariably be recognized by physical signs. A case of pneumothorax was observed which had prominence and diminished respiratory movement on the left, with hyper-resonance and diminished respiratory murmur, but with absence of amphoric note, of amphoric breathing, of coin sound and of displacement of the heart. A local functional spasm of the diaphragm was seen, a functional dilatation of the aorta, simulating aneurism, confirmed post-mortem, was proved to exist. Broadbent's retraction of the left lower posterior chest wall was shown by post-mortem evidence to occur *without* adhesions. A case of pouch of the esophagus was demonstrated in which a change in pulse rhythm was observed according as the pouch was full or

empty. Some success was attained in studying abdominal organs, especially kidneys, liver and stomach. The article is somewhat fragmentary since many records were destroyed in the San Francisco fire.

3. Thomas and Greenbaum believe that multiple neuritis in children, independent of diphtheria, is more common than is generally supposed, probably since many cases are mistaken for anterior poliomyelitis. They have found in the literature only 138 cases in children, but of 21 cases of multiple neuritis, not diphtheritic, seen at the Johns Hopkins Hospital, 8 occurred in children under twelve. The symptoms in children do not differ from those in adults. Multiple neuritis is to be distinguished from anterior poliomyelitis by a more insidious onset, more often without fever, by the presence of a cause, such as lead, arsenic or infectious disease, to which it can be traced, by a more frequent occurrence of pains and sensory disturbance, by a more widespread and often a symmetrical distribution which is rare in anterior poliomyelitis and by its ultimate complete or nearly complete recovery. The differentiation is important on account of the far better prognosis in multiple neuritis. The treatment consists of removal of the cause if possible, hygienic and tonic treatment, together with massage, electricity and hydrotherapy to the affected parts. Many cases have occurred in local epidemics, sometimes associated with epidemics of anterior poliomyelitis.

4. Gellhorn recommends the use of acetone in inoperable cancer of the uterus, not as in any way a curative measure, but as a means of overcoming the stench which is often the most distressing circumstance connected with the case. Acetone is extensively used in pathological laboratories to harden tissues; its use was therefore suggested to produce an effect upon the cancerous surface similar to that of cauterization. Gellhorn applies it first after a preliminary curettage under anesthesia. Subsequent applications of the acetone are given twice to three times a week without anesthesia, the acetone being held in the cavity for fifteen to thirty minutes each time. The result is a great diminution of or complete relief from discharge and odor, and a cessation of hemorrhages. The pain of the growth requires anodynes as before, but with cessation of hemorrhages the general condition of the patients so far treated has visibly improved and the odor has been entirely overcome.

5. Howard's paper is a report of Osler's 20 cases of myxedema, with an analysis of 100 cases of myxedema reported in American literature. Cretinism and postoperative myxedema are not considered. Myxedema proper is rare in negroes, and occurs most frequently in cold climates. It has been reported in several members of a family. Women are more often attacked than men, especially after rapid child-bearing. A previous history of Graves's disease is sometimes obtained. In its pathology the thyroid gland is found small and pale, and the skin on section is jelly-like and contains an excess of mucin. The symptoms begin, as a rule, insidiously, with languor, chilliness and slowness of motion. The most characteristic symptom is the presence of an edema which does not pit on pressure, causing an increase of weight and bulk and giving a mask-like immobility of facial expression. Supraclavicular pads and enlarged extremities are observed. The skin is dry and harsh, the hair is coarse and tends to fall out, the nails are brittle; the lips are often enlarged and salivation may occur. Next to the cutaneous system the nervous system is most strikingly affected. A functional derangement occurs, characterized chiefly by a slowness in all its activities. Somnolence is common, memory is often impaired; changes of disposition, various phobias, delusions and hallucinations or actual insanity may be present. Abnormal sensations, especially chilliness and sense of fatigue, also neuralgic pains, headache and various paresthesias are frequent. Slowness of motion is rarely absent; the gait is clumsy and lumbering; paresis of various muscles may occur. The speech is very constantly slow and monotonous. Special senses are often impaired. The temperature is nearly always subnormal. Hemorrhage from mucous surfaces is common. Albuminuria is often present, but the amount of albumin rarely exceeds a trace. The diagnosis, as a rule, is easily made from symptoms and appearance, and by exclusion of other diseases, such as Bright's disease; the therapeutic test serves as final confirmation. The treatment consists in careful administration of thyroid extract, beginning with one 5-grain tablet a day or less and gradually increasing the dose. Acceleration of the pulse is usually the first sign of overdosage; extreme prostration, headaches, sweating and irritability are other toxic effects. The first sign of improvement is the rising of the body temperature; following this are seen diminutions in edema and in body weight and improvement of all symptoms. With thyroid treatment not too long deferred, life should not be appreciably shortened. Of the cases of this series since the use of thyroid extract was discovered, 4.1% of the cases collected died of the disease and 79% were completely cured.

9. Wootton has followed the practice of giving oxygen inhalations as routine after anesthesia, beginning immediately on suspension of the anesthetic (ether) and continuing until consciousness is regained. In two years' experience at the Ozark Sanatorium, he asserts that he has not had one patient that has been disturbed by nausea or vomiting when this has been done. The list of operations includes almost all procedures known to major surgery.

11. Schott describes experiments and clinical observations bearing upon the condition known as acute overstraining of the heart. Clinically the condition appears after excessive exertion with severe symptoms of cardiac insufficiency. Examination reveals cardiac dilatation and hyperkinesis. In acute cases recovery is rapid and the condition does not necessarily recur. Observations upon healthy persons after severe exertion in wrestling and in bicycle riding, the heart being examined both before and after, show that such exertions produce marked dilatation which may well produce muscle straining. In treatment of such acute overstraining of the heart, rest is the first essential, aided by digitalis, heat or cold to the precordia and morphia if necessary for pain. Generous nourishment is important, and later bath treatment, carefully-graded exercise and long avoidance of overexertion. [F. W. P.]

THE LANCET.

APRIL 20, 1907.

1. *JAMIESON, J. K., and DOBSON, J. F. *The Lymphatic System of the Stomach.*
2. SHAW, T. C. *Suicide and Sanity.*
3. *HAY, J. *The Early Diagnosis of Consumption.*
4. *BARDSWELL, N. D. *The Immediate and Ultimate Results of the Sanatorium Treatment of Pulmonary Tuberculosis.*
5. JOHNSON, A. E. *On Ligatures and Buried Sutures with Special Reference to Catgut.*
6. CHOKSY, N. H. *Some Indications for the Treatment of Cholera.*
7. HALL, F. DE H. *A Case of Pressure on the Trachea.*
8. *WERNICH, S. F. *The Successful Treatment of Tuberculosis and Leprosy, etc.* (Concluded.)

1. This is a careful and thorough anatomical research on the lymphatics of the stomach based on injections of about thirty of these organs. It makes clear what glands must be removed in a radical operation for cancer in this region. The sub-pyloric group must be removed at any cost, as it is involved in 60% of cases. Its removal, however, is extremely difficult.

3. Hay discusses the early diagnosis of consumption in obscure cases met with in an out-patient department. He describes the pathology with its results, local and constitutional. The local lesion may be fibrosis, protective and conservative, or caseation, distinctive and progressive. He emphasizes the fact that phthisis easily develops without symptoms, but also that these symptoms are often neglected or assigned to some trifling cause. Chlorosis is often an early sign, but when due to tuberculous disease the blood pressure is subnormal, while in simple chlorosis it is seldom below 130 mm. Cough is an almost invariable accompaniment, usually without sputum. Hemoptysis is of paramount importance.

Pain may be present in the chest or may be referred to an arm or a shoulder. Dyspnea without physical signs in the chest may be present up to 30–40 respirations a minute. Tachycardia is a distinctly unfavorable sign, aspecially if *not* associated with fever. In many cases the onset is apparently an attack of influenza. Family history, past history, surroundings and occupation must be

carefully inquired into. As regards physical signs, their location is of greater importance than their quality; it is safe to attach much weight to the presence of certain signs, little weight to their absence; it is unwise to base a diagnosis on any one sign, and in perfectly sound chests one frequently meets with wide variations from the normal, but these variations from the normal are greatest from the tenth to the twenty-fifth year, much less after that age. Vocal fremitus is of little aid; percussion may be of the greatest help. Auscultation is of the greatest importance, but the patient must first be taught how to breathe properly to get good results. Weakening of the breath sounds at one apex, especially the right, is one of the earliest and most important signs. He recommends the keeping of temperature and weight records as an aid in diagnosis, and the estimation of the opsonic index.

4. Bardswell gives the first results of treatment of 277 consumptives under his care from 1899 to 1905, with the exception of 40, all of the leisure class, and except 17 all unselected cases. The *immediate* results of these cases were as follows: Of 91 early cases, 66 were completely arrested; of 97 fairly recent and extensive cases, 10 were completely arrested and 84 were improved but incompletely arrested, while 3 died. Of 66 chronic progressive cases, 16 were discharged with complete restoration of general health, but with signs still present in the lungs, and 42 less improved. None were completely arrested; 7 died. Out of these 277 cases only 10.4% failed to receive any benefit at all, while 28% were completely arrested; of the 91 early cases 72.5% were completely arrested. As to *ultimate results*, out of 260 patients discharged 32% are in perfect health, one to eight years after discharge, 39.6% have died and 10 have been lost sight of. The others are in fair or poor health.

8. Wernich continues in this paper a detailed description of cases treated by his new albuminoid serum. The first four were of leprosy in various forms with some brilliant results and some failures. With lupus he had successful results in practically every case. In treating pulmonary tuberculosis, his results with colored patients were far less favorable than those with white. In no case were dietetic or hygienic outdoor treatment used in addition to his method. He divides his cases (those here reported are all among whites) into quiescent and active. His results in all of these cases among whites are remarkable, — alleviation of symptoms in twenty-four hours and disappearance of signs and symptoms in two to three weeks. This somewhat remarkable paper must have further confirmation before it can be taken very seriously. [J. B. H.]

British Medical Journal.
April 20, 1907.

1. *Barr, J. *The Effects of Respiration on the Circulation.*
2. *Lewis, T. *The Pulsus Bisferiens.*
3. Bell, W. B. *On the Part Played by the Calcium Salts in the Blood and Tissues.*
4. *Turck, F. B. *The Etiology and Pathology of Peptic Ulcer.*
5. Willis, W. M. *Case of Repeated Abdominal Section for Perforation of Gastric Ulcers.*
6. Makins, G. H. *A Case of Cellulitis following Infection by an Organism Set Free by the Wounding of an Old Blind Diverticulum of the Large Intestine.*
7. Week, H. *Dislocated Spleen with Torsion of Pedicle Complicating Pregnancy; Removal of the Spleen.*
8. Lucas, T. C. *A Note on Haffkine's Antiplague Vaccine.*
9. Butler, T. H. *A Case of Chloroma.*
10. Brahmachari, U. N. *Albumosuria and the Duration of Albuminuria in Cholera.*

1. Barr writes, in opposition to Wenckebach's recent article in this journal on adherent pericardium, to defend his own views of the origin of the paradoxical pulse. This is due to one of two causes, namely, a defective filling or rapid emptying of the arteries, due to abnormal pressure conditions within the chest.

2. The term "pulsus bisferiens" refers to a form of palpably double pulse with two beats, the second of which is really a reinforcement of a prolonged systole. There are two types, one associated, the other unassociated, with arterio-sclerosis. It is quite distinct from the dicrotic pulse. The causes are obscure, but it seems to be definitely connected with a greatly dilated and hypertrophied left ventricle.

4. Turck fed a number of dogs for several months on bouillon cultures of colon bacilli and in every animal experimented on spontaneous genuine peptic ulcers were found from which the animals died either by hemorrhage or perforation. Certain cellular changes and alterations in the blood serum showed a diminution of the normal protective powers resulting in autocytolysis, apparently produced by the absorption of products from the gastro-intestinal tract. There was no evidence of any healing process. In a second series the feeding of the colon bacilli was stopped as soon as there were any indications of an ulcer. Then allowing sufficient time for healing to go on, the animal was killed. On post-mortem there was found round-cell infiltration and cicatrization of the incomplete ulcers in various stages of healing. In post-mortem examination of 271 control dogs no ulcers were found in any case. Intravenous inoculation failed to produce any ulcers. He describes the other previous attempts to produce ulcers of the stomach by various investigators with different theories as to the origin of these ulcers and gives in detail the technique of his own experiments and the pathological findings. He believes that altered conditions of stomach fauna and flora have a large part to play in the production of ulcers and also enter into the question of etiology in many other diseases. [J. B. H.]

The Edinburgh Medical Journal.
April, 1907.

1. Haultain, F. W. N. *A Clinical and Anatomical Study of Thirty Cervical Fibroids Removed by Abdominal Hysterectomy.*
2. Williamson, R. T. *Amyotrophic Lateral Sclerosis and Progressive Muscular Atrophy.*
3. Weber, F. P. *Acute Dilatation of the Stomach and Intestines in a Case of Multiple Peripheral Neuritis.*
4. *Turner, D. *The Electrical Conductivity of the Blood and Urine in Health and in Disease and as a Test of the Functional Efficiency of the Kidney.*
5. Urquhart, A. R. *On Insanity with Special Reference to Heredity and Prognosis.* (Concluded.)
6. Brown, A. C. *Two Forgotten Medical Worthies.*

4. Turner believes that careful estimation of the electrical conductivity of blood and urine is a distinct aid in surgical affections of the kidney in estimating the renal capacity before operating. It is far more accurate and simple than cryoscopy. The electrical resistance of blood depends upon the salt concentration and the relative volume of the corpuscles to the serum. Resistance of the urine depends on the ionic concentration, *i. e.*, upon the salts, acids and bases, of which NaCl is by far the most important. It is unaffected by the presence of albumin, sugar or blood. A high resistance of blood and a low resistance of urine is indicative of health. In disease the changes are in the direction of a diminished resistance of the blood, as in kidney disease, chlorosis, anemia, etc. From the estimation of the resistance of these two fluids a hemorenal index is estimated. The writer gives the details of his work and several cases. [J. B. H.]

Deutsche Medizinische Wochenschrift, No. 14.
April 4, 1907.

1. *Sonnenburg, E. *Enteritis and Appendicitis.*
2. *Hoffa, A. *Chronic Joint Rheumatism and Arthritis Deformans.*
3. Wollenberg, G. A. *The Pathological Anatomy of Chronic Joint Disease and Arthritis Deformans.*
4. *Tilmann. *Treatment of Tetanus.*
5. Papaioannou. *A Modification of Bassini's Operation for the Radical Cure of Hernia.*
6. *Ehrhardt, O. *Etiology of Relapses and Pseudo-Relapses after Gallstone Operations.*
7. Biberfeld, J. *Dosage of Intravertebral Injections of Adrenalin.*
8. *Arndt, G. *Hemolysis in Staphylococcus Affections.*
9. Fromme, F. *The Cause of Fever in Cancer.*
10. Hoffmann, E., and Bruning, W. *Some Successful Inoculations of Dogs with Syphilis.*

1. Sonnenburg notes the frequent difficulty in differentiating appendicitis from gastro-enteric disorders and thinks the latter cases are not infrequently operated upon and normal appendices removed. Acute appendicitis often arises secondarily from extension of inflammation from an inflamed cecum. In cases without marked peritoneal signs and a low white count, the author recommends the use of castor oil to completely empty the bowel. Most of such cases will get well when thus treated without operation. If operation later becomes imperative, the peristalsis thus started is not enough to materially increase the risk.

2. Hoffa attempts to classify chronic joint affections from an etiological standpoint as follows:

A. Non-infectious chronic joint diseases.
1. Chronic traumatic arthritis.
2. Chronic irritative arthritis. (Hydrarthos chronicus.)
3 Chronic constitutional arthritis:
(*a*) Gout. (*b*) Hemophilia.
4. Arthritis deformans:
(*a*) Spontaneous. (*b*) Reflex (reactive). (*c*) Neuropathic.
5. Chronic functional arthritis.
(Joint neuralgias, intermittent hydrops.)

B. Infectious joint affections.
1. Primary chronic joint disease.
(Polyarthritis chronica progressiva primitiva or destruens.)
2. Secondary joint disease:
(*a*) Chronic disease secondary to acute rheumatism. (*b*) Chronic joints after other infectious diseases, — gonorrhea, scarlet fever, etc. (*c*) Tubercular joints. (*d*) Syphilitic joints.

4. Tilmann has seen no case in which tetanus antitoxin has been given which has convinced him of its specific action. Cases in which the tetanus symptoms come on within the first six days usually die; if they are delayed ten days they usually recover; the intermediate cases die or get well according to the virulence of the infection. He is not yet convinced of the harmlessness of the use of the serum in prophylaxis, and in his own wards at the Charity Hospital in Berlin does not use it unless bacteriological examination of the wound shows the presence of the tetanus bacillus.

6. Ehrhardt finds from the surgical literature that recurrence of trouble after gall bladder operations comes mainly from three sources: (1) the overlooking and leaving of stones in the bladder; (2) adhesions; (3) pseudo-relapses or hysterical manifestations. The first two causes are being rapidly eliminated by better technic. Stones are very rarely new-formed in the gall bladder, but if the gall bladder be not removed or its neck left, then the author thinks that the glands and ducts described by Luschka, having been infected by the original process, may keep up the inflammation or even form hard or soft concretions in the mucous membrane, which may ulcerate through and obstruct the duct.

8. Arndt summarizes his investigations thus: (1) Hemolytic tests enable us to establish the specificity of any given staphylococcus infection, but they give no sure indications for prognosis. (2) Human beings have a certain natural resistance against the staphylococcus. (3) Antistaphylolysin is found in the blood stream and also in the exudate and surrounding edema; it can be detected in the blood long after the exciting cause has subsided. (4) The antitoxin can apparently be produced at the site of the inflammation, independent of the blood-forming organs, especially if the favoring influences of congestion be present. [L. G. M.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 14. APRIL 2, 1907.

1. *Riedel. *The Safest Appendix Incision; Its Value in Ligature of the External Iliac Artery in Removal of Femoral Hernia and in Major Intra-abdominal Operations.*
2. Lange, F. *What Can the General Practitioner Do to Relieve the Condition of Cripples?*
3. Janssen, P. *The Avoidance and Treatment of Fecal Fistulæ Following Operations for Appendicitis.*
4. *Hænisch, F. *X-Ray Treatment of Hypertrophy of the Prostate; Its Technic.*
5. *Goldschmidt, H. *A New Method of Urethral Endoscopy.*
6. *Roepke, W. *Active Hyperemia in the Treatment of Arteriosclerotic Gangrene.*
7. *Landwehr, H. *Results Following Fracture of the Patella.*
8. Bogen, H. *Congenital Dislocation of the Patella.*
9. Vörner, H. *Onychia Pigmentosa.*
10. Erdmann. *Tuberculosis of the Eye Successfully Treated with Tuberculin.*
11. Reichard. *A Case of Penetrating Gunshot Wound of the Abdomen.*
12. Prym. *The Removal of Blood from the Rabbit's Ear.*
13. Auerbach. *A New Sensitometer.*
14. Schmidt. *Exposure of the Deeper and Inner Portions of Tumors to the X-Ray.*
15. Zum Busch. *The Eightieth Birthday of Lord Lister.*
16. Weckerling. *Semmelweis or Lister?*

1. Riedel advocates the so-called "zig-zag" incision not only for interval appendectomy, but also for abscesses of moderate size. He further employs this incision in cases of abdominal exploration, not hesitating to make a subsequent median incision if necessary. The incision is the usual muscle-splitting one more generally known in America under the name of McBurney's.

4. Enlarged prostates can be made to decrease in size under the influence of the Roentgen rays. Application is made through a rectal speculum with the patient in the knee-chest position. Simultaneous treatment of the bladder with catheter and irrigation should always be employed.

5. Goldschmidt describes a new instrument for endoscopy of the urethra and outlines some of the conditions found by its use.

6. Active hyperemia by immersion of the foot in hot baths of lysol enabled Roepke to determine the best point at which amputation should be done in a case of arteriosclerotic gangrene.

7. The examination of the late results of sixteen cases of patella fracture from the clinic of Bardenheuer at Cologne leads Landwehr to conclude that the bloodless method of treatment gives exactly as good results as does the operative method. [W. C. Q.]

Miscellany.

MASSACHUSETTS GENERAL HOSPITAL. RESOLUTIONS BY THE VISITING STAFF ON THE RESIGNATION OF DR. ARTHUR T. CABOT.

The announcement of Dr. Cabot's resignation from the hospital was received with profound regret by the visiting staff, especially by the visiting surgeons. His voluntary retirement is assured beyond recall, and his colleagues unite in affirming that Dr. Cabot's services to the hospital in the past have been of the greatest value, not only in the routine daily duties of the ward, the amphitheatre and the clinic, but in the inception and carrying out of those liberal and progressive ideas which have made the Massachusetts General Hospital what it is to-day.

While the staff regret that it is no longer possible for the hospital to receive the benefit of Dr. Cabot's active service, they trust that from time to time they may enjoy the advantage of his experience and wisdom when questions of deep concern to the general policy of the hospital arise.

They sever the ties of intimate professional companionship with a sincere sorrow which they feel it difficult to express.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 4, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,509	466	Quincy	1	—
Chicago	764	230	Waltham	1	—
Philadelphia	—	—	Pittsfield	—	—
St. Louis	—	—	Gloucester	5	2
Baltimore	186	56	Brookline	4	1
Cleveland	—	—	North Adams	6	1
Buffalo	—	—	Chicopee	8	5
Pittsburg	—	—	Northampton	4	1
Cincinnati	—	—	Medford	5	—
Milwaukee	—	—	Beverly	1	—
Washington	—	—	Leominster	4	1
Providence	74	24	Hyde Park	5	1
Boston	221	44	Melrose	3	0
Worcester	38	9	Newburyport	—	—
Fall River	41	15	Woburn	8	1
Cambridge	25	8	Marlboro	5	0
Lowell	32	6	Westfield	2	1
Lynn	19	4	Peabody	—	—
New Bedford	34	18	Revere	1	1
Springfield	23	5	Attleboro	5	0
Lawrence	25	9	Clinton	4	1
Somerville	17	1	Adams	3	—
Holyoke	30	10	Gardner	—	—
Brockton	12	2	Milford	—	—
Malden	11	3	Watertown	4	1
Chelsea	8	2	Plymouth	—	—
Salem	13	4	Weymouth	3	1
Newton	8	2	Framingham	—	—
Haverhill	13	1	Southbridge	2	2
Fitchburg	7	3	Wakefield	—	—
Everett	9	2	Webster	—	—
Taunton	17	1			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MAY 1, 1907.

CARRINGTON, P. M., surgeon. Granted leave of absence for three days from April 29, 1907, under paragraph 189 of the Service Regulations.

MATHEWSON, H. S., passed assistant surgeon. Granted leave of absence for fifteen days from April 27, 1907. April 26, 1907.

GRUBBS, S. B., passed assistant surgeon. Granted one day's leave of absence, May 6, 1907. May 1, 1907.

HOLT, JOHN M., passed assistant surgeon. Granted leave of absence for two months from June 20, 1907. April 29, 1907.

WARD, W. K., assistant surgeon. Leave of absence granted Assistant Surgeon Ward for one month, on account of sickness, from April 1, 1907, amended to read for twenty-fwo days only. May 1, 1907.

STILES, CHAS. W., chief of the division of zoölogy. Granted leave of absence for five days in April, 1907.

KASTLE, J. H., chief of the division of chemistry. Granted leave of absence for nine days in April, 1907.

SCHWARTZ, LOUIS, acting assistant surgeon. Granted leave of absence for seven days from May 2, 1907. April 29, 1907.

STRAW, E. E., acting assistant surgeon. Granted leave of absence for twenty days from April 15, 1907. April 26, 1907.

RYDER, L. W., pharmacist. Granted leave of absence for seven days from April 27, 1907. April 26, 1907.

WATTERS, M. H., pharmacist. Leave of absence granted Pharmacist Watters from April 1, 1907, for thirty days, amended to read nineteen days from April 4, 1907. April 29, 1907.

BOARD CONVENED.

A board of medical officers was convened to meet at Philadelphia, Pa., April 30, 1907, for the physical examination of an officer of the revenue-cutter service. Detail for the Board: Surgeon J. M. Gassaway, chairman; Passed Assistant Surgeon T. Clark, recorder.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 11, 1907.

V. C. B. MEANS, surgeon. Upon discharge from treatment at the Army and Navy General Hospital, Hot Springs, Ark., ordered home and granted sick leave for three months.

M. S. ELLIOTT, surgeon. Detached from the "St. Louis" and ordered to duty at the Navy Yard, Norfolk, Va., in connection with fitting out the "Olympia," and to duty on board that vessel when placed in commission.

H. C. CURL, surgeon. Ordered to additional duty at the Naval Medical School Hospital, Washington, D. C.

E. S. BOGERT, JR., surgeon. Upon expiration of leave, ordered to the "Milwaukee."

I. W. KITE, surgeon. Detached from the "Kearsarge" and ordered to the "Franklin."

G. H. BARBER, surgeon. Detached from the "Baltimore" when placed out of commission, granted leave for one week and thence ordered to the "Kearsarge."

R. A. BACHMANN, passed assistant surgeon. Detached from the "Franklin" and ordered to the "St. Louis."

J. R. WAGGENER, medical director. Having been examined by a retiring board and found incapacitated for active service on account of disability incident to the service, is retired from active service May 6, 1907, under provisions of Sect. 1453 R. S.

E. N. BROWN, passed assistant surgeon. Detached from the Bureau of Medicine and Surgery, Navy Department, and Ordered to duty at the Naval Hospital, New Fort Lyon, Colo.

W. H. SHORT, R. I. LONGABAUGH, F. X. KOLTES, M. A. STUART, assistant surgeons. Appointed assistant surgeons, with rank of lieutenant junior grade, from May 4, 1907.

J. E. PAGE, surgeon. Detached from the "Milwaukee," and ordered to continue treatment at the Naval Hospital, Mare Island, Cal.

RECENT DEATHS.

WINTHROP BUTLER, M.D., M.M.S.S., died in Vineyard Haven, April 20, 1907, aged sixty-eight years.

DR. MARVIN STEPHEN BUTTLES, a retired physician of New York, died on May 9, after a long illness. He was born in Otis, Berkshire County, Mass., in 1833, and was graduated from the medical department of the University of the City of New York in 1864. From 1864 to 1873 he was a teacher of obstetrics in that medical school, and from 1865 to 1872 was surgeon of the Seventy-first Regiment, National Guard, State of New York. In 1867 and 1868 he was respectively vice-president and president of the East River Medical Association. He was the founder and physician-in-chief of the Olivet Female Infirmary, and was also for a time medical officer of the New York Fire Department. At the time of his death he was president of the Hotel Savoy Company and of the Hamilton Fire Insurance Company.

DR. JOHN W. BRENNAN, an old and respected practitioner of New York, died on May 10. He was graduated from the College of Physicians and Surgeons, New York, in 1862.

BOOKS AND PAMPHLETS RECEIVED.

The Essentials of Histology. Descriptive and Practical, For the Use of Students. By E. A. Schäfer, LL.D., Sc.D., F.R.S. Seventh edition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1907.

A Treatise on the Principles and Practice of Medicine. By Arthur R. Edwards, A.M., M.D. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1907.

Ulceration of the Cornea. By Angus MacNab, B.A., B.Sc., M.B., Ch.B., F.R.C.S. Illustrated. New York: William Wood & Co. 1907.

The Treatment of Coryza. By E. S. McKee, M.D. Reprint.

Obstetrics. By E. S. McKee, M.D. Reprint.

Transactions of the Obstetrical Society of London. Vol. XLIX. For the year 1907. London. 1907.

Ingestion Tuberculosis. By John B. Huber, M.D. Reprint.

Rapport A M. Le Préfet sur les Recherches effectuées au Bureau du Casier sanitaire pendant l'année 1906 relatives à la répartition de la tuberculose dans les maisons de Paris. Paris. 1907.

Rapport A M. Le Préfet sur les Enquêtes effectuées en 1906 dans les maisons signalées comme foyers de tuberculose. Paris. 1907.

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Address.

THE BORDER LAND OF MEDICINE AND SURGERY.*

BY REGINALD H. FITZ, M.D. LLD., BOSTON,

Hersey Professor of the Theory and Practice of Physic in Harvard University.

On the front of the building erected for the Harvard Medical School in 1883, are inscribed the names, Hippocrates, Celsus, Galen, Vesalius, Paré, Haller, Harvey, Sydenham, Hunter, Bichat. Of all names in medical history these were deemed the most worthy of such distinction. Each of these men represented an epoch, and the influence of each in his turn has been of undying influence in the progress of medicine from the age of Pericles to the present day. .

During this period medicine has become divided and subdivided into its various specialties; advance has been made now in the one direction, then in the other, but the unity of medicine has ever remained paramount, and whatever has benefited a part has always proved of advantage to the whole. At times this progress has been checked by the frequent quarrels of physicians and surgeons who have shown for each other contempt and hatred, envy and malice, until what should have been a generous rivalry in a common cause became a persistent warfare and an inglorious defeat. But dissensions have lessened, distinctions have become recognized, and a border line has been traced, shadowy to be sure, but ever changeable and surrounding a territory open to each and productive for all. It is the purpose of this address to call attention to some of the landmarks in this borderland of medicine, to pay tribute to those who have been instrumental in establishing them, and to indicate some of the means by which this region is to continue productive.

The writings of the Hippocratic period, four or five centuries before Christ, recognized but one healing art, — medicine, — and the physician, for there was no surgeon, was conversant with disease only which was to be treated in various ways according to its nature. Especial skill was recognized in those who cut for stone, and the physician who took the Hippocratic oath swore to relinquish this operation to those who made it a business. Fractures and dislocations, wounds and ulcers, hemorrhoids and fistulæ demanded appropriate treatment, but diet, baths and exercise were depended upon to maintain health, and dietetics played an important part in the treatment of disease.

Celsus, shortly before the birth of Christ, has recorded the state of medical knowledge and practice at and before his time. The practice of medicine was regarded as beneath the dignity of a Roman citizen, and was largely in the hands of Greek slaves and freedmen. These practitioners were degraded, immoral and quarrelsome, often mere sycophants. He divided disease into three groups, — the first cured by diet, the second by medicine and the third by manual operations. He assigned to surgery those cases in which the physician makes a wound where he does not find one, and those wounds and ulcers in the treatment of which manual operations are more useful than medicines, and, lastly, whatever ailments relate to bones.

Galen, who lived a century or more after Celsus, makes it evident that the distinction between medicine and surgery was well established. His system of medicine, founded on a scientific and historical basis, served to raise the standard of the physician and to maintain the dignity and prominence of medicine for more than a thousand years. According to Haeser, his philosophical interest led him to harmonize facts and theories, and to establish a system " which gave an answer to every question and a solution of every problem. His apparent omniscience enchained intelligence and barred all progress for centuries."

For a while the physician became honored and favored, and those especially eminent acquired great riches. With the decadence of the Roman Empire, centuries elapsed before any noteworthy progress in medicine was made. The majority of writers were compilers and commentators and added but little to the knowledge of their forefathers. The doctrines of Hippocrates, Galen, Paul of Ægina, and other Greek and Roman authors became incorporated in the writings of Rhazes, Avicenna and Albucasis, and these Arab manuscripts, carried into Europe by way of Spain, became the authority in medicine and surgery till within comparatively recent times.

The monasteries, also, were important in preserving the influence of Greek and Roman medicine. The Benedictines, in particular, were advised to study Hippocrates and Galen, and their library at Monte Casino contained many medical manuscripts. The practice of the monks was limited to their own sex and increased to such an extent that it was prohibited by the Second Lateran Council, and at the Council of Tours the disobedient monks were threatened with excommunication. Eventually, however, they were allowed to practice medicine but were forbidden to make use of surgery. This check to the progress of surgery was promoted also by the Arabs who often substituted the cautery for the knife and were more interested in materia medica than in surgical operations. The practitioners of surgery, therefore, were obliged to acquire their knowledge largely through limited opportunities for observation and without especial training. The demand for the surgeon, and for the physician also, was increasing in consequence of the numerous wars, especially the Crusades, and the pestilences which at times ravaged Europe and the East.

The further development of medicine and surgery was fostered at first in the schools of Salernum and Montpellier, and later by the universities, especially in Italy and France. At Salernum a definite distinction was first drawn

* Abstract of the address of the President of the Congress of American Physicians and Surgeons at the Seventh Session in Washington, D. C., May 7, 1907.

between the education of the physician and that of the surgeon. At this school in 1240 the medical student was required to pursue a preparatory course of three years in logic, after which five years were to be spent in the study of medicine and surgery. Then, after having passed a prescribed examination, he was permitted to practise, but for a year was obliged to consult habitually with an older physician. The student of surgery, on the contrary, was allowed to practise after he had spent "at least one year in the study of that part of medical science which gives skill in the practice of surgery." He must also have "diligently and especially studied the anatomy of the human body." At this period anatomy was taught on the pig, and the human body was dissected in the presence of physicians and surgeons but once in five years. In Montpellier at about the same time every practitioner of medicine must be examined, while the surgeon was not required to pass an examination.

The schools then gave way to the universities, and Naples, Bologna, Padua and Paris became renowned in their turn as centres of medical education. The Medical Faculty in a given city consisted of all the graduated doctors in medicine of the university, each of whom had the right to teach, although but few were appointed for this purpose. Thus the doctors in medicine were but few in number. In Paris, in the seventeenth century, there were 540,000 inhabitants and only 110 doctors in the Faculty of Medicine. During these years there were many practitioners of medicine and surgery; for instance, 2,000 in Milan in 1288, with a population of 200,000. Some were licensed to practise, but without the title of doctor; others practised surgery with and without the license and there were many empirics of all kinds.

The distinction between the physician and surgeon thus became established as one of the nature and extent of the education. The physician, who might also practise surgery, received a university education extending over a long period of time and might obtain the dignified title of doctor which made him a member of the Medical Faculty, with a right to teach and to take part in its proceedings. He was an educated gentleman and a man of authority.

The surgeon, on the contrary, who had not received the education of the doctor, might acquire a sufficient theoretical knowledge of surgery in a year, at the end of which he could obtain the degree of master of surgery. Even then all practical knowledge for both classes of graduates must be obtained outside the university from those actually dealing with the sick. Many of these surgeons were without means to pay for university training, had little or none of the knowledge of Latin or Greek necessary for the doctor and often began their career as barbers. The latter became associated with medicine at an early day, according to Gairdner, because it was necessary that monks should be shaved and bled periodically (five times a year at the monastery of St. Victoire in Paris) and it was convenient to employ the same person for the two occupations. Furthermore, monks were not allowed to draw blood, although venesection was a highly commended remedy for various ills and the monastery barber became a convenient proxy. The act of bleeding was not without a certain risk to the operator, for the Visigoths in the sixth century decreed that if a freeman should be injured by venesection a fine should be paid. If he should die the relatives might do what they pleased with the venesector. Since the barbers practised venesection it was considered a disgrace for the doctors to bleed, but the barbers extended their practice from venesection to the application of leeches, the use of the cautery and, eventually, to minor surgery.

Included among the practitioners of surgery were attendants at bathing establishments, some of whom had acquired the habit of blood-letting, also natural bone-setters and experts for operations for hernia and stone, perhaps deriving their skill through inheritance of family secrets from generation to generation. To these were added the public executioners who were called upon to reduce dislocated joints and to treat the sprains, bruises and bleedings resulting from the various means employed in the torture of the accused and the condemned.

The educated surgeons, of whom some were also doctors of medicine, desired to be protected from identification with the larger class of irregular practitioners and wished for an honored position like that of the physician. In Paris in the thirteenth century they formed an association for this purpose and after a few years established a college, subordinate to the Faculty of Medicine, with statutes corresponding to those of the university giving them the privilege of holding stated meetings, and of educating and examining students. The influence of the college became increased through the decree of Philip the Fair, that no male or female should practise surgery in Paris who had not been examined for that purpose. Thus the barbers were made to submit to an examination in surgery.

The members of the Medical Faculty of this city were jealous of the rising importance of the surgeons. They regarded the art of the latter as a handicraft exercised also by many illiterate persons, and they wished to maintain the control of medical affairs. They, therefore, undertook to divorce the practice of surgery from medicine, and in 1350 their statutes demanded that baccal laureates in medicine shod swear not to performu-surgical operations or to treat wounds, ulcers, fractures, dislocations and tumors. The barbers in their turn rebelled against the aggressiveness of the surgeons and obtained an edict permitting them to apply plasters, ointments and other medicaments for bruises, abscesses and all open sores. The Faculty took the barbers under its protection on condition that they would not use internal remedies without consulting with one of its members. To spite the surgeons it gave the barbers a course in surgery, and, later, one in anatomy in French. The surgeons rebelled and

the court decided that a member of the Faculty should give the lecture, the surgeon dissect and the barber assist. This warfare between the Faculty, the surgeons and the barbers continued until 1660 when it was decreed that the barbers and surgeons should submit to the Faculty.

Meryon informs us that in England a similar state of affairs existed and that the practice of medicine was largely in the hands of monks until the time of Henry VIII. The best educated had received their medical instruction in Italy and in France, but were few in number. The country was flooded with ignorant pretenders of all kinds who became much more numerous after the dissolution of the monasteries. Surgery was practised by barbers and by surgeons, most of whom had acquired their knowledge, as in France, by observation without especial training.

In Scotland the surgeons and barbers were incorporated as the guild of barber-surgeons and were granted a monopoly of their trade, the right to dissect annually an executed criminal and to make and sell all *aqua vitæ* within the burgh. These barber-surgeons later became surgeon-apothecaries by taking up the sale of drugs, and united with the apothecaries in opposing the request of the physicians for a charter which infringed upon some of the rights claimed by the surgeons.

During the greater part of this period of quarrel and strife, especially in France, between physisians and surgeons, but little advance was made in the progress of medicine. The field of surgery, however, became greatly widened through the genius of Ambroise Paré who found his opportunity in military surgery then transformed through the introduction of gunpowder into warfare. New problems arose to be solved only by an independent, forceful thinker.

Beginning as a barber's pupil he became the counsellor of kings. By his originality and breadth of view he gave distinction to surgery second only to that confered two centuries later by John Hunter. His writings were in French, therefore accessible to all classes of surgeons, including the barbers, whom he did not forget in the height of his success. In consequence of his achievements he was admitted to full membership of the college of St. Côme although he was unable to comply with an existing requirement, a knowledge of Latin.

The domain of medicine and surgery now became alike widened by the renewal of interest in the study of anatomy. From the days of the Alexandrian school to the beginning of the fourteenth century, a period of more than fifteen hundred years, all anatomical investigations had been made on the lower animals, and little or no attention had been paid to human anatomy. Yearly dissections now were made in Venice and in Montpellier. They were often spectacular, and dignitaries of the city and distinguished citizens were invited to be present. The bodies were chiefly those of executed criminals though occasionally derived from other sources.

The dissections represented almost wholly a demonstration of the two great cavities of the body, and were completed in three lectures. But little anatomy was learned from such exercises, and practically no addition was made to the existing knowledge of the subject until the sixteenth century. Then Vesalius, physician and surgeon, but above all, anatomist, by his investigations demonstrated the falsity of the doctrines of Galen based on the dissection of the lower animals. He was given abundant material for his researches, and by the elimination of error and the discovery of truth placed the study of medicine upon a scientific basis.

The numerous and important discoveries in human anatomy which first showed the inaccuracy of Galen's teachings were soon followed by a still more important and fruitful discovery, that of the circulation of the blood by Harvey. Theoretical statements of vital processes thus were subject to control by the actual knowledge of existing conditions. Research into the structure and functions of the body now became a subject for independent study, and medicine began to depart from theory and to assume more of the shape of an experimental science. The physician who had been pompous, dogmatic, full of false and absurd ideas, content to discuss and argue, and to refer the treatment of the patient to the barber and apothecary, became, in consequence of this scientific movement, a patient investigator of facts, and a serious, often impatient, critic of theories.

The example was set by Sydenham, the English Hippocrates, and a founder of exact observation of the patient. He despised tradition and observed the phenomena of disease as processes in nature, not differing essentially from the manifestations of health. He overthrew the authority of Galen in practical medicine as Vesalius had in anatomy, and Harvey in physiology. Sydenham, however, as a pioneer in the scientific consideration of disease, devoted his attention exclusively to the observation and analysis of symptoms, and lacked the essential control furnished by the study of the associated and resulting lesions. Original, independent and an accurate observer, he makes no mention of Harvey, apparently was unaware that Malpighi had already discovered the capillaries which he maintained could not exist, and had an outspoken contempt for pathological anatomy.

The time now had arrived for the development of this branch of the medical sciences, progress in which was to be intimately connected with all further advance in the theory and practice of medicine and surgery. The association of symptoms and lesions was the work of Morgagni, who first duly emphasized the importance of pathological anatomy in the control of clinical observation. His labors, by supplementing those of Sydenham, were the beginning of modern methods of observation and thought in medicine, as contrasted with those of Galen and his followers.

In the meantime, the utilization of the recent discoveries in anatomy, physiology and in the clinical characteristics of disease was being

accomplished at Leyden. There is no mention of any clinical teaching worthy the name for more than fifteen hundred years, until an attempt was made at Padua, in 1578. This was soon followed by the introduction of bedside teaching at Leyden, and Boerhaave systematized this form of instruction and made that city the center of medical education and the resort of students from all parts of the world. The clinic consisted of but twelve beds, but he had the privilege of drawing patients from elsewhere. His students were taught the value of anatomy and physiology in medical practice, and he pursued the method of Sydenham in his observation and analysis of symptoms. One of his pupils, Haller, a skilled anatomist and eminent as a physiologist, became professor of medicine and surgery, although he is said never to have performed a surgical operation. He is called the "father of experimental physiology," and by his method of investigating vital functions established a scientific basis for the study of disease.

During this period of activity in medicine, learned men of scientific mind and training were studying the phenomena of health and disease as physicians, not as surgeons. The latter remained practitioners devoted to an art which seemed far removed from scientific interest, and which presented but little attraction for educated men. A change was about to take place, however, and was initiated by the definite separation of the barbers from the surgeons.

Surgery became a science, however, through the labors of one man, John Hunter, anatomist, physiologist, pathologist and surgeon. He showed that the methods employed in the accurate study of disease were the common property of surgeons and physicians. It was his aim to demonstrate that the relation between processes and results in health to be determined by physiological experimentation must exist in disease, and be determined by like methods. He was the founder of experimental pathology, alike applicable to medicine and surgery. In the words of Paget, "until his light shone the border line between medicine and surgery was sharply defined. On the one side were physicians, not only learned in their own calling, but men of high culture, educated gentlemen, and the associates of gentlemen. On the other side were those whose profession was a handicraft, whose education was mainly practical, and whose associates were unknown. After his time the relation between surgery and the sciences was established, and the scientific surgeon gained entrance into the most cultivated class."

The effect of Hunter's work was enhanced by that of Bichat, equally distinguished for breadth of mind, intensity of application and with a genius for generalization. Physician at the Hôtel Dieu, anatomist, physiologist and pathologist, his life was spent in searching for the seat of disease by observation and experiment. Dying at the age of thirty-one, his services to experimental physiology and pathology in determining the actual seat of vital processes in health and disease have placed his name among the immortals. What Hunter did for surgery, Bichat accomplished for all medicine, and the study of disease from his time became the study of processes taking place within the tissues.

During the first half of the nineteenth century, the scientific study of disease, whether more medical or more surgical in its therapeutic relations, progressed to the advantage of each. This was largely by the adoption of uniform measures, but especially in virtue of the increasing knowledge of pathological anatomy and pathological histology. The work of Morgagni and Bichat was carried on by Cruveilhier and Rokitansky, essentially descriptive pathological anatomists. The centre of scientific thought in medicine was now transferred to Germany and became lustrous chiefly through the teachings of Virchow, pupil of Johannes Müller and of Schönlein. These teachings applied to all medicine, and the keenness of his insight, the accuracy of his observation, the breadth of his view, the soundness of his judgment and his knowledge of the past afforded a combination of qualities without peer in medical history. Every specialist in medicine felt the influence of his teaching. His assistants and pupils were important discoverers and their work often was inspired by his suggestions and fortified by his criticisms. His achievements in anthropology, in philosophy, in citizenship and in affairs of state gave evidence of his genius. John Hunter and Bichat alone of all medical worthies stand nearest him, and Virchow had the advantage of Hunter's example and accomplishment and the results of Bichat's genius to aid in his development. During the same period surgery was represented by skilled anatomists, ingenious and brilliant operators, judicious counsellors and admirable teachers, especially in France and England. The leaders believed in a surgical pathology, and Paget set the example of its study, which was subsequently followed with even greater success by Billroth.

The latter half of the nineteenth century is filled with records of medical progress, all of which lie within reach of living memories. The discoveries in medicine of this period have added more to the welfare of mankind, as manifested by relief from suffering and disease, than the sum of all known efforts in this direction since the origin of man. Common to medicine and surgery, they have been alike beneficial to each and have resulted in a redistribution of the border land of medicine and surgery, giving and taking, adding more and more to the domain of surgery, relinquishing less, but opening fresh fields to the labors of the physician. Anesthesia and asepsis lead all the rest, and the names of Morton, Pasteur and Lister stand high among the world's benefactors. The discovery of surgical anesthesia was an inspiration, that of antisepsis the result of gradual, prolonged, often discouraging, labors by many men. The work of all led to the success of the few, and the genius of Pasteur revealed for surgery what the talent of Lister made available.

The early effect of these discoveries was to make a radical change in the treatment of certain

diseases. Operations hitherto avoided in consequence of their length and the sufferings of the patient were gradually assumed. The former distinction between medical and surgical therapeutics, based upon the use of medicinal or of manual methods, upon diseases of the surface or of those of the cavities of the body, rapidly gave way. The duration of life with an operable disease not treated surgically was contrasted with the possibility of rapid and permanent relief by measures which offered more or less immediate risk to life. Anesthesia thus encouraged the operator, no longer disturbed by the immediate sufferings of the patient, and increased the number of surgeons as well as that of the operations.

In his presidential address before the American Surgical Association, J. Collins Warren gives the total number of operations at the Massachusetts General Hospital during the five years before anesthesia as 184, while in the five years after anesthesia it was 487. This increase in the frequency of operations was attended, as a rule, with an increase in their mortality. The latter was due, in part, to a wider selection of cases, which included patients previously regarded as unsuitable, and in part to the prolongation of the operation, with its attendant risks, especially of infection, since speed in operating was no longer of especial importance.

The border-land diseases which first felt the effect of the new discovery were those of the abdomen. This cavity had been invaded by the surgeon from time to time in the early history of medicine, but, as a rule, only on account of the gravest conditions immediately threatening life.

The one operation above all others which led to the transfer of many affections of the abdominal organs from the care of the physician to that of the surgeon is to be credited to American surgery. Dr. M'Dowell, of Danville, Ky., in 1809, first performed ovariotomy, with the intent of relieving his patient from cystic disease of the ovary. The customary treatment for ovarian disease hitherto had been either medicinal by drugs, or mechanical by pressure, puncture, the injection of irritating substances into the tumor, or incision with or without drainage. The disease was absolutely incurable despite the favorable reports occasionally to be met with, which, from our present point of view, must be attributed mainly to errors in diagnosis. According to Graily Hewitt, "the probable duration of a case of ovarian disease of progressive character is, in 85% to 90% of the cases, two or, at the most, three years; of the apparently stationary or chronic cases, the prognosis is more favorable, but in such cases the disease is liable at any moment to start into fresh activity." The successful removal of ovarian tumors through an abdominal incision was soon followed by attempts to remove the diseased uterus in a similar way.

Thus in 1846 the border land of medicine and surgery had become definitely invaded. For the most part it was a region filled with disability, suffering and despair. The inaccuracy of diagnosis, the uncertainty of prognosis, the dependence upon the healing powers of nature, the occasional relief of symptoms by the physician acted as a bar against the terror and danger which attended the invasion of the surgeon. The introduction of surgical anesthesia at once took away much of the immediate mental and physical suffering; terror became fear only, and danger was reduced to risk.

The effect of anesthesia in changing the border land of medicine and surgery was chiefly confined to the treatment of affections of the uterus and ovaries. Gynecologists and surgeons vied with each other; success lay with the former at first, but the surgeon soon took equal rank with the gynecologist and energetically availed himself of the experience and skill acquired by the latter.

The period of antisepsis then arrived, begun by Lister more than forty years ago, slowly progressing through his untiring efforts, welcomed by Germany before it had made much headway in Great Britain, France or the United States, but finally adopted throughout the world. Its application to ovariotomy by Keith, of Edinburgh, in 1877, reduced his mortality of 10% to 14% to 3% in 1880. Cæsarean section, an operation hitherto so fatal as rarely to be undertaken, acquired a mortality of about 25%.

Thus the application to laparotomy of Lister's method of treating wounds justified the surgeons in undertaking the gravest operations with but little hesitation. A new specialist in surgery arose, the abdominal surgeon. It lay within his province to undertake the treatment of affections of the stomach, intestine, liver and biliary tract, pancreas, spleen and kidney which, hitherto, had been considered to belong to the domain of the physician as being too hazardous for the surgeon to attempt to relieve. The antiseptic method had its dangers, however, and the necessary limitations to the use of carbolic acid, corrosive sublimate and iodoform were learned. The bacteriological investigations, especially of the Germans, led to the replacement of the antiseptic by the aseptic method of surgical treatment in all suitable cases. In consequence, the last fifteen years have witnessed the unhesitating advance of the surgeon into regions not only of the curable but also of the incurable diseases. The nearly absolute control of technics and the ingenuity and skill of the operator have so lowered the mortality of the operation that, in the doubtful affections, the uncertainty or inefficacy of medical treatment, the acquiescence, even the demand, of the patient, have encouraged experimental surgery apparently almost beyond limit. The surgical invasion of the border land is, at times, impatient of opposition and usually is resistless.

The number of operations at the Massachusetts General Hospital has increased from 385 in the decade before anesthesia to 24,270 in the decade following 1894. The mortality of ovariotomy has been reduced to a few per cent. Kelly has had 100 consecutive, abdominal hysterectomies, which included all kinds of complications, and lost but two patients, and his mortality in 1,000 cases was

3%. Cæsarean section has a fatality of less than 12%. At the last session of this Congress Dr. W. J. Mayo stated that in the service of his brother and himself the mortality of 510 operations for gallstones was 3%, and of 208 cases of stones in the gall bladder, without complications, the operative mortality was 1%.

With due appreciation of the great benefits that have arisen from the surgical invasion of the border land, there still exists sufficient reason to progress slowly and cautiously. Operative success is not necessarily a justification for the operation, as has repeatedly been recognized by those who are brought in contact with its failures. The removal of a diseased part, and especially of a diseased organ, may dispose of a result but not of a disease. Splenectomy in leukemia, despite its almost invariable fatality, has repeatedly been performed. A solitary kidney or a multilocular cystic kidney has more than once been removed, without thought that the patient was being deprived of his only means of living. Operative myxedema was worse than goiter, although without it we might not so readily have learned the value of thyroid therapy. The extirpation of normal organs has failed to give anticipated relief, and has resulted in disturbances more disastrous than the symptoms for which it was undertaken. The surgeon has learned to know that his knife may prove a two-edged sword, giving relief with the one cut, but with the other laying the foundation for subsequent disease. Operative success has increased the number of operators as well as the number of operations. But skill in operating is not attained in a day and requires a long period of preparation impossible for every one who would become an operator. The multiplication of small hospitals gives surgical opportunity, but this does not make the surgeon.

In the earlier days, the separation of surgery from medicine was caused by such an immediate and large demand for surgical treatment that the practitioner was encouraged in obtaining his education as quickly as possible. With little or no preliminary preparation, and with very limited practical instruction, he was sent to the wars, or was left to take the place of those who had gone. Such surgeons, with rare exception, accomplished nothing to advance the cause of surgery. In these days, on the contrary, the demand for the surgeon is due to the improvement in his art. It is for the leaders to be mindful that in broadening the field the breadth of the surgeon should not be contracted. Fortunately in this country education in medicine is demanded of all, whatever the ultimate practice may be, but the tendency to specialize is apt to begin too early. All may not agree with Senn who advises the expectant surgeon to "master the elementary branches in college, do general practice for several years, return to laboratory work and surgical anatomy, attend the clinics of different operators, and never cease to be a physician. If this advice is followed there will be less unnecessary operating done in the future than has been the case in the past."

The skilled surgeon has but little more to strive for in operative success in many operations, but his usefulness will be greater who knows when not to operate, and whose researches discover means by which operations may be made unnecessary. Billroth said, "Before deciding on the necessity for an operation, I always propose to myself this question: 'Would you permit such an operation as you intend performing on your patient to be done on yourself?' Years and experience bring in their train a certain degree of hesitancy."

The responsibilities of the surgeon never have been greater than at the present day. The final decision usually rests with him, and the physician is only too ready to be relieved of his burden. The ease of making the diagnosis after the operation not infrequently leads the surgeon to undertake it with too little forethought of what is to be encountered. He is inclined to be satisfied that for therapeutic purposes an operation must be performed. His skill in diagnosis, however, should transcend that of the physician, since his opportunities of control are furnished by every operation designed to relieve the patient, while those of the physician are limited largely to the post-mortem examination of the patient beyond relief. The operation is permitted, the autopsy often is denied. The therapeutic test of diagnosis offered by the physician represents essentially a sequence of events; that carried out by the surgeon is one of cause and effect. The biopsy of the surgeon has added valuable knowledge to the necropsy of the anatomist, but it is not infallible. The operation of the pathologist is exhaustive, that of the surgeon is limited, and the decision ultimately must rest with him who has the larger opportunities. This constancy of control should make the surgeon especially cautious and thorough in his investigation, particularly in the border-land cases, for upon the accuracy of his diagnosis, the future of the patient is to depend.

The surgeon has even greater obligations than those which arise from taking every possible means of making a correct diagnosis. His operative mortality may not be as low as that of the most successful, or as high as that of the beginner. It should be his best, determined by every conscientious and intelligent effort to perfect it. As surgeon, and not merely as operator, he is to satisfy the physician that the ultimate welfare of the patient is to be enhanced rather by surgical than by medical treatment. The lower his personal operative mortality, the more permissible is the trial of surgical measures. But the outcome of any operation, however simple, always has the element of uncertainty; and the existence of a medically irremediable, morbid condition is not a sufficient reason for an operation. As Treves says: "If the mortality attending ovariotomy were to be increased threefold beyond the present percentage, the operation would still be justifiable, inasmuch as the death-rate in untreated cases is so high as to leave but little prospect of life. On the other hand, were the death-rate of hysterectomy lower by threefold than it is, it would not sanction the performance of that operation on

account of a small fibroid tumor which had ceased to grow, which produced no symptoms, but which the patient, as a whim, was determined to be freed from." A knowledge of the natural history of disease, therefore, is essential, and it is not to be forgotten that the latter has been the object of study for several generations before the aseptic period, and should be familiar to every surgeon. It is known that all cysts of the ovary are not proliferating cysts, nor do they necessarily attain a size productive of disturbance. Innocuous myomata of the uterus are so common after middle life that frequently they are to be regarded rather as abnormal than as pathological attributes. Because malignant disease of the uterus is associated with some of these it does not follow that all fibromyomata should be removed through fear that they may become malignant. Gallstones are present in a large number of cases of cancer of the gall bladder, but they are oftener found when there is no cancer of this organ, and it is a questionable argument for their removal that they sometimes are present in this disease. Gallstones in this relation are quite as likely to be the result as the cause of the cancer. The physician will have greater confidence in the judgment of the surgeon, when he knows that the latter is qualified by the thoroughness of his knowledge of pathological anatomy in general, to give due weight to the natural history of disease, and is not unduly impressed with contingencies which may happen, but of which there is no apparent prospect. But if the possible extent of the relief is limited, or new dangers are likely to arise, it becomes a serious question whether the temporary advantage of the few is compensated for by the permanent detriment of the many. In such cases it is the future of the patient which is to offer the means of discriminating between a useful and a useless operation. When operations were fewer this was to be observed by the physician. With the great increase in the number of the surgeon's operations, it is for him to keep informed of the subsequent history of the patient, and to be able to justify his action by a recognition of its effects, not for weeks or months only, but for a lifetime, whether this is to consist of weeks, months, or years.

The wise surgeon thus selects from the border land those cases which the physician has in vain attempted to relieve. He has taught the latter repeatedly that greater accuracy in diagnosis is attainable, that medicinal efforts for the absorption of an exudation, or the removal of a growth are usually a waste of time. He has demonstrated that the continued use of opium for the relief of pain may mask a purely mechanical disturbance to be definitely relieved only by mechanical measures; that the control of fever by antipyretics may prove a snare and a delusion; that prolonged jaundice is not to be cured by medicines; that obstinate vomiting does not necessarily demand a sedative, or persistent constipation a laxative. The diminishing reliance of the physician on treatment with drugs is significantly shown by the records of the Out-Patient Department of the Massachusetts General Hospital. According to Böhm, the number of prescriptions for drugs diminished from 68,143 in 1900 to 43 063 in 1906, more than one third, while the daily average of patients increased from 298 to 325. This change has been brought about by the introduction of the various appliances for physical therapeutics. In 1903, a daily average of 42 patients was treated entirely or chiefly by these measures. Thus the physician is led to recall the teachings of Hippocrates, that suitable diet, appropriate exercise, proper clothing and quiet of mind are important not only in the maintenance of health but in the recovery from disease.

The successful invasion of the border land by the surgeon is due mainly to the fact that surgery has become a science. The scientific surgeon, like the scientific physician, will have cause to glory in his name, which has sometimes been used in reproach, provided he has always before him the thought of applying his science for the relief and cure of disease. Scientific methods are to be acquired in the laboratory only, and the leaders in medicine of the present day realize that the laboratory has become quite as important in education as the clinic. They recognize that it is not the number of patients the physician or surgeon sees which makes his opinion valuable, but the sort of consideration he is able to give the individual patient. The ideal surgeon, therefore, seeks his early training in anatomy and pathological anatomy, in histology, physiology and pathology, in chemistry, physics and bacteriology, and thus prepared becomes the more successful in his encounter with disease. A like training is demanded of the physician, and the conjoint efforts of both are needed in the search for means of making future operations less necessary. It is always to be remembered that the origin of antiseptic surgery and its transformation into aseptic surgery are largely the outcome of laboratory methods in bacteriology and that the development of this science has been especially productive in the progress of medicine. Numerous discoveries in the etiology of disease, its methods of transmission, its prevention, the origin of symptoms, accuracy in diagnosis and precision in treatment are the outcome of bacteriological research. The ultimate extension of the border land of medicine, the corresponding limitation in the field of surgery, and the discovery of means of making many operations unnecessary seem most intimately connected with further progress in this science.

Biological chemistry, allied on the one hand to physiology, on the other to bacteriology, gives promise of a more accurate understanding of the nature of vital processes in relation to health and disease. It also permits the early recognition of remediable disorders and the control, if not cure, of those which have passed beyond the initial stages. The dependence upon the laboratory never ceases. The laboratory of pathological histology is an adjunct of the operating room, the bacteriological laboratory has become a

necessity of the clinic, and the laboratory of the workers with the Röntgen ray is essential in diagnosis and treatment for physician and surgeon.

The training of the student in medicine in the scientific laboratories leads to his fullest preparation in the laboratory of clinical pathology, the clinical laboratory of the school in contradistinction to the greater clinical laboratory, the hospital. In the former he is to utilize all the methods of scientific observation, analysis and experimentation obtained in his earlier education that he may apply them in the latter to the diagnosis and treatment of disease. It is through the use of these methods that he is to recognize his opportunities and his limitations, to improve the former and to lessen the latter. Through them he is to fit himself the more thoroughly to give to his patient the benefit of medical or surgical methods in the treatment of the particular ailment.

The amount of knowledge to be obtained along these lines is without limit, the immediate value indefinite, but the promise is incalculable. The unselfish devotion of the workers and the general appreciation of their labors are meeting a reward not only in the good which has been accomplished but in the substantial aid which is being received from public and private sources. In this country, in particular, private munificence has set an example which makes the older world envious and there can be no more profitable investment than that which makes all mankind its debtor.

Thorough training in the laboratories is the best preparation for contact with disease. Many of the problems the latter offers remain unsolved, are steadily renewed, and can only be simplified by the return to laboratory methods of investigation. The solution often requires experimentation and the more clearly defined the conditions, the more definitely attainable the answers. Many such problems are to be found within and without the border land, and the more thorough the preparation of the physician and surgeon, the more skillful and beneficent their art, the more exact and the more productive their science.

Original Articles.

PHYSICAL TRAINING IN BOSTON PUBLIC SCHOOLS.*

BY JAMES B. FITZGERALD, M.D., BOSTON.

PHYSICAL training in the Boston public schools was established by vote of the school committee, June 24, 1890, when it was

"*Ordered*, That the Swedish system of educational gymnastics be introduced in all the public schools in the city."

This order did not have practical effect, however, until Jan. 1, 1891, when the first director of physical training elected by the board began the work of organizing the department. This order was passed as the result of a report of a special committee of the school board which had investigated and considered the question in all its bearings. The order never had full effect, however, because physical training was never established in all the public schools.

It is interesting to know that the recommendation of this committee which was adopted at this time came before the school committee in exactly the same form nearly fifty years ago, in 1860, to be exact, upon the recommendation of Mr. Philbrick, superintendent of schools at that time, but it did not have the approval of the board.

The special committee recommended that a director and four assistants be appointed, but the department had to begin with a director and one assistant only.

Enebuske's "Book of Gymnastics" was adopted as a textbook, the general idea being that in the primary and grammar grades the exercises should be done in the class rooms, or, perhaps, in the halls or corridors, occasionally, under the direction of the regular teachers. These teachers met at central places and were instructed by an expert who afterwards visited the class rooms to see that the work was properly done. When I took charge of the department in 1899 that was the way it was being done and that is the way it is being done at present, only it is no longer necessary to have the teachers' conferences.

The system works as well as can be expected. It is work that the regular teachers should not be asked to do if there was any way out of it, but it is certain that if this plan had not been adopted we would have had no physical training at all. In the primary and grammar grades it is as impossible for every teacher to teach gymnastics well as it is for every teacher to teach music well or drawing well, but as a whole they do astonishingly well, and in extreme cases we are sometimes able to have what is called departmental work; that is, the physical exercises are taught by some one who can teach them and the room teacher teaches something else.

Enebuske's book has been given up and a series of twenty printed cards, which make a graded course, has been adopted. They are the work of Mr. Nissen, a former assistant in the department.

Now the Swedish system differs from other systems in two important particulars. I am speaking now of educational gymnastics. In the first place, all exercises must be done in response to the word of command; they must not become rhythmic or automatic; they must have no assistance from music, for instance, and they must not be done so often that they become to any great degree automatic. In the second place, the exercises must always follow a certain definite order which is called the "Day's Order." The Day's Order begins with an introductory movement, then come arch flexions, heaving, balance, back, abdominal, jump and breathing.

Twelve minutes a day are set apart for these exercises in primary grades. The cards are, of course, very simple in these grades and all that is attempted is to give the children some idea of good sitting and standing positions and some

* Read at the Boston Medical Library meeting, Feb. 13, 1907.

training in fixing the attention. Emphasis, in the primary grades, is placed upon play and not upon educational gymnastics.

In the grammar grades sixteen minutes a day are given to the exercises, and emphasis is placed on good position, concentrated attention, quick response to the word of command, precision and decision. We come just as near the military standard, the West Point standard, as we can.

You will agree with me, I suppose, that this is good as far as it goes, and I hope you will agree with me that it does not go far enough, — that young boys and girls need to be considered from a hygienic as well as from an educational standpoint, and that the element of play should enter in.

With this in view we began five or six years ago the experiment of placing simple gymnastic apparatus in a few grammar schools where the conditions were favorable and where the masters and submasters were in sympathy with us. The apparatus was placed usually in the hall or basement and in one case in the corridor. Some of it could be used out of doors as well. For a time this experiment was a great success and we increased the number of schools with apparatus as fast as possible. There are now, I think, ten schools of this kind and the masters are unanimous in believing in the great benefit of this work, both in regard to the health of the pupils and as a means of improving the discipline of the school.

But a difficulty has arisen; the exercises have to be conducted by some one connected with the school, usually a submaster with occasional help from the department of physical training. It has happened in three or four cases that, owing to death, transfers or some such reason, new teachers have come into these schools who were not able to teach these advanced gymnastics. So far, we have been able to find other schools which were glad to get the apparatus, but it is a question how much farther, as a business proposition, it is wise to go under the present conditions. Of course, we look forward to the time when each grammar district will have its special teacher of physical training and hygiene who will relieve the grade teachers of a part of their burden and who will give his whole time to the physical work and to what is perhaps as important, the physical play of the pupils.

In one of my reports I venture to say that where from fifteen to twenty teachers are employed to train the minds of the pupils it does not seem unreasonable to ask that there shall be one to train their bodies.

In the high schools a different plan is followed. Speaking only of the girls — special teachers of physical training are employed who give their whole time to the work. The work is compulsory for all of the pupils, except a few who are excused for physical reasons, and it is carried on with one or two exceptions in the school gymnasiums. Two periods of about forty-five minutes are given each week, and if the work is well done the pupils receive two points towards the number necessary for graduation.

Nearly all of the high schools have or soon will have baths, and the students are of course encouraged to use them. This part of physical training, the work of the girls in high schools, is perhaps the most satisfactory part of the system. The only improvement I could suggest would be a medical examination and an increase in the number of lessons per week. The only reform that has been necessary has been the preventing the girls from taking part in competitive athletics.

When we come to the young men, however, the situation is not so satisfactory. As a matter of fact, when I took charge of the department there was no physical training for young men in any high school in the city. There were two reasons for this remarkable state of affairs. One was a lack of teachers and the other was the military drill. We have increased the number of teachers somewhat and we have introduced physical training for some of the boys in some of the high schools but the military drill still stands in the way of our doing all we ought to do for the physical welfare of the boys.

I suppose it is treason, but as a physician and as a citizen, I wish we were well rid of it. Disregarding the moral side and the injurious side which has been pointed out by Dr. Sargent and others, there is no doubt in my mind that simply as a preparation for war, simply as a means of making good soldiers, a thorough course in physical training would be infinitely better than what they are getting now in the military drill. So, while we can say that in the case of girls things are fairly satisfactory, in the case of the boys things are unsatisfactory and are likely to remain so.

I found that while the young men were doing nothing in gymnastics they were doing a great deal in all the various forms of competitive athletics, but, without the slightest regulation on the medical side; I was able to get the co-operation of the head masters and for the last seven years every candidate for a team has had to pass the director's medical examination. Until within two years the school committee took no official notice of the athletic question which is really one of the most important problems with which school officials have to deal. It is a moral, a physical and an intellectual problem.

Two years ago the head masters requested the school committee to appoint a sufficient number of assistants to the director of physical training competent to teach athletics. The committee appointed two instructors of athletics as an experiment. This experiment must have been considered successful by the head masters as far as it went, for a month or more ago they requested the committee to appoint some more teachers of athletics. In various other ways the school committee has shown its interest in athletics and its willingness to co-operate with the head masters. It seems reasonable to believe that before long athletics in the schools will be entirely in the hands of the representatives of the school committee.

You may be interested to know in a general

way some of the results of the medical examination of school athletes.

We hear a great deal of the evils of athletics and I have no desire to minimize them, but I am bound to say that I have found very little evidence on the physical side in an experience of seven years. For instance, I have found just one case which I think could be fairly called an athletic heart, that is, a heart abnormally developed as a result of exercise. I have never found any evidence of pulmonary tuberculosis. This, perhaps, is not to be wondered at in the case of athletic youngsters, but it is worth recording.

I find an ocasional case of valvular disease or an irritable heart which makes me think that competition would do more harm than good, but they are surprisingly rare. I examine the same young men year after year in the various sports, and my testimony must be given that if a boy has a sound heart and lungs when he begins competition he is equally sound at least when he leaves the high school.

Blaikie said, twenty-five or thirty years ago, that Americans had no chests and no legs. I think there has been an improvement as to legs, but I cannot say as much for the chests. It is certainly the rare exception to see a finely developed chest.

In conclusion, you will see that something is being done, but that much remains to be done. We need more time for physical training, we need more teachers and we need more gymnasiums and more playgrounds. The department of physical training in 1891 consisted of a director, one assistant and three or four special teachers. At present it consists of a director, four assistants and fifteen special teachers.

MEDICAL SUPERVISION VERSUS MEDICAL INSPECTION OF PUBLIC SCHOOLS.*

BY THOMAS F. HARRINGTON, M.D., BOSTON.

MEDICAL inspection of school children has pointed out the necessity for the co-operation of physician and pedagogue if the physical and the mental health of the child is to be maintained in the adjustment of a fixed curriculum to a varying child. It has shown also that if the ends of a rational system of education are to be realized the path must be kept clear of unnecessary obstructions. The problems involved call for the closest union of physician and educator. This union is what I mean by medical supervision.

Massachusetts is the first state to enjoin the medical inspection of all children in the public schools. By the provisions of this legislative act [1] the medical profession becomes an active participant in the duties and the responsibilities thus assumed by the state. The greatest good to the child and to the state can be secured only so far as the members of the medical profession realize the importance of these new functions. Massachusetts will be sustained and indorsed, here and abroad, in this advanced step wholly by the confidence which the work of the physician wins, — work which calls for the highest type of public spirit and disinterestedness.

The physician in the public schools is not of recent introduction. As early as the beginning of the nineteenth century Peter Frank of Austria considered the instruction in schools and the duties of the physicians thereto in his "System of Complete Medical Police." In 1832 the number of lessons was diminished in Sweden for reasons of health. Many of the scientific congresses of Europe in the third quarter of the last century discussed the need of medical inspection and supervision of schools. To-day several countries have their boards of medical supervisors as a part of the central educational system; few, if any, are without medical inspection of school children, school surroundings, etc.; others like Austria-Hungary have made the work a state affair, and have granted the school physician a voice in the deliberations of local school boards. Japan has commenced the construction of a national system of education having for its foundation the physical state of the school children. In all these efforts abroad to lessen the physical and the mental defects among school children, as well as to construct a rational system of education the task is intrusted to the physician and the school authorities. In the United States, however, the work in this line thus far attempted has been done under local boards of health. Boston was the first city in this country to inaugurate the medical inspection of schools (1894). The plan established then has been followed more or less closely in other localities and states, and involves the appointment of visiting physicians by the board of health who direct their work. Originating as an effort to protect the public from the spread of contagious diseases through the aggregation of children in schools the system has great value in preventive medicine, and has proven its efficiency as such often. The well established fact that schools contribute largely to the spread of contagious diseases justifies the appointment of school inspectors, and likewise necessitates that these officers of the health department have free access to the schools. When viewed from the standpoint of the school, however, we meet an anomalous situation. In the first place the detection of unsuspected cases of contagious disease among the children is done by the teacher and not by the medical inspector; if the latter confirms the teacher's suspicion he exercises then the power of his department, *i.e.*, the public health department, and excludes the child from school; if the medical inspector does not agree in the conclusions of the teacher the child returns to its classes. Many teachers do not feel that they have technical knowledge sufficient to make a provisional diagnosis even, and rather than submit to the possible chagrin of a mistake hesitate, or do not call the inspector. There is also the possibility that ailing children not suffering from contagious disease may mingle with cases of true contagion while awaiting the

* Read at the Boston Medical Library meeting, Feb. 13, 1907.
[1] Acts and Resolves, 1906, chapter 502.

arrival of the medical inspector. If the child is excluded and the case proves to be other than one of contagion the child becomes an involuntary truant often, and the school department is put to the expense and annoyance of returning that child to school. A more direct and practical means of accomplishing the end sought, and at the same time eliminating the above objections, would be for the teacher to exclude the child and at the same time notify the health department and the nurse representing that school. The school and the home, through the medium of the nurse, would thus continue their joint responsibility of the child without the intervention of the health department, while the public would have greater protection by the medical inspector's visit to the home, often the hidden or undiscovered source of contagion. Nurses of a part of the school government can be of inestimable service to the health department in pointing out where inquiry should be made. Schools should be notified daily of all contagion in their respective districts. Children excluded by the teacher or nurse and found free from contagion would be traced readily and returned to school, inasmuch as the failure of the school to receive a notice from the health inspector would be *prima facie* evidence that such a child was non-contagious. New York City illustrates this arrangement. In 1902 the medical inspectors of the board of health on their own responsibility excluded 10,567 children, many of whom did not report to their parents and did not return to school. In 1903 the health and the educational departments united; nurses were added to the system with the result that only 1,001 children were excluded. Every child excluded from the school should be given a blank stating the reason for his exclusion and requesting the parent or guardian to sign the blank stating whether the family would provide medical attendance for the child or whether aid was desired. These blanks must be returned for filing with the corresponding stub in the possession of the nurse or teacher.

Within very recent years medical inspection in America has widened its scope beyond the detection and isolation of contagious diseases among school children, and the inspector is asked to pass upon sight, hearing, spinal curvature, adenoids, mental and physical defects, or any other demonstrable or supposed cause interfering with the school advancement of the child. This work has been added in many localities to the duties of the school inspectors of the health department. Why these agents of the board of health should be expected to carry out this work it is hard to understand. The abnormalities and defects cannot be classified as dangerous to public health. The salary of the medical inspector is merely nominal. The offense to the family physician engendered by conscientious honest work is a direct personal loss to the inspector. The inspector is not a part of the school system in which he is called upon to exercise power, and in which he bears the whole responsibility; his presence in the school is one of sufferance, if not less. The school authorities in whom compulsory attendance at school is vested have no jurisdiction in the matter. The antagonism of many families towards the agents of the health department, whom they regard as a sort of medical police, does not create active co-operation of the homes. Finally, the pressing necessity for the solution of many problems in pedagogy depending upon a careful study under competent medical authority, of many physiological and psychological data calls for something more than the pointing out of imperfections and the unsupported accusation that race deterioration due to school curricula is imminent. In the absence of a standing army with compulsory military service whereby the physical status of the whole population may be learned it becomes very essential that the advancing army of school children be studied closely so as to gain that information necessary for healthy development. It is not scientific nor accurate to take much for granted in this investigation. We assume often that one child is brilliant because his parents are brilliant, that another is defective because his parents do not exhibit marked mental activity. The real fact is that these qualities are acquired traits and not dependent upon physical structure which is the only part inherited by the child. Then too we assume that all children at a certain age physically must be at a certain stage of development mentally, hence the grading system in the public schools which has raised the age of college entrance to almost nineteen and a half years, a prohibitory age to many for acquiring higher education and professional life. We assume that all children are developing their faculties according to some fixed order, whereas, we have abundant illustrations in the physical part that children vary greatly in periods of growth and in the time and length of the nascent periods. The many misfits of school children and the curriculum find their explanation in this error. The best time to develop mental or physical capacity is when that power is growing. To neglect it means its degeneracy, to force it at its unnatural period means abnormality and a lack of harmony of the whole. An experiment made in Paris a few years ago illustrated those points graphically. Four principals each gave to twenty-five boys in his school the same studies prescribed in the regular courses, but in different order depending upon the natural development of the boy's mind, and not upon an arbitrary order of a fixed curriculum. The result was that these boys completed the required studies in all the courses in three and one half years instead of the prescribed seven years. They were found to be equally proficient mentally and physically as compared with those who had spent seven years in going over the same course.

Biology, physiology and psychology have each established data upon which each child can advance. Sensation, memory, imagination, judgment, comparison, curiosity and reason—each has its fixed period of activity and repose, each has its outward manifestations in the growing child.

Fatigue has its signs in the physical actions of the child long before it produces mental fatigue and exhaustion. If we hope to develop a generation physically and mentally able to combat the problems of the future it is absolutely necessary that all these questions be solved rationally. The solving of these questions has received nothing from the system of medical inspection in vogue in America. It requires the co-operation of physician and pedagogue under a different relationship than that prevailing in the present method. The position of the physician in the school should be one of supervision and control of all those questions having to do with the physical welfare of the school child. He should be counsel and advisor to teachers and school authorities in adjusting the many questions of mental and physical correlation in school curricula. He must be a part of the school system to which the state and the home intrust the mental development of the child without fear of physical injury resulting therefrom.

Any plan proposed for the medical supervision of school children must have at least three essentials, — it must be simple, practical, economic. To be simple its aim and purpose must be readily comprehensible to the lowest intelligence in the community; it must create an interest among children and parents and in the homes, so that there shall be greater confidence and a unity of action between the school and the home; it should stimulate parents and guardians to a fuller realization of their obligations, the benefits of better ways of living, the effects of such measures on length of life, its happiness and its cost. The plan should demonstrate that the general effects of school life are healthy if not counteracted by outside agencies; in a word any scheme proposed should aim to make the school the continuation of the home, the home the strength of the school, one the supplement of the other. The plan must be practical in so far as it meets the varying conditions of each child, his environment, temperament and mental development. Practical in the sense that it not only teaches that the highest quantity and quality of mental progress is dependent upon the physical state of the child, but it must show the simple methods by which this physical state may be maintained. It should strive to encourage and assist each individual to attain *his* highest development, mentally and physically, rather than point out variations from some ideal type which is contrary often to all laws of biology. Its end must be to remove the *causes* tending to lessen the average mental fullness and physical up-building of the whole population, rather than to center solely upon developing individuals with better made ears, throats, noses, or bodily contour. The method must have the possibilities of extension to the larger communities and the whole state, as well as meeting the requirements of the smallest country district, in order that uniform methods of pedagogy may be classified and judged. It must be economic not alone in the size of the budget required, but rather in demonstrating that *cost* and *value* are not interchangeable terms; that anything which betters the educational methods of a community means better return for the money expended than much larger sums spent for correctional, reformatory and dependency institutions. No system of medical inspection or supervision in schools, however simple, practical or economic, can attain its full measure of usefulness unless it has the confidence and support of each community in the state. This can be secured best by instruction and persuasion, not by compulsion and coercion. Parents and public officials will co-operate readily when they see that the measures proposed have for their sole aim and purpose the bettering of the child, group of children, and ultimately the whole population. Just as the detection and elimination of physical defects in the early school years mean less mental backwardness among future pupils in the higher grades, so too will the lessening of high tension, nerve exhaustion and unhygienic modes of life among pupils in the advanced classes guarantee a race superior physically and mentally. Obviously the physician is the one person most competent by training and preparation to weigh the significance of these various elements. City and town school authorities about to introduce medical inspection should secure such a medical official as the first essential. His position should be that of school *supervisor* as pointed out above, leaving the care of infectious or contagious diseases to the health department inspectors, ward physician, or the city physician.

Section 5 of the Acts and Resolves, 1906, chapter 502, provides that the school committee shall see that each child in the public schools is carefully tested and examined at least once a year, not only for defective sight and hearing, but also to ascertain whether he is suffering "from any other disability or defect tending to prevent his receiving the full benefits of his school work, or requiring a modification of the school work in order to prevent injury to the child or to secure the best educational results." The testing of the sight and hearing is vested in the teacher. Few will deny that the teacher above all others is the one best qualified to judge whether the child is receiving the full benefit of his school work, or whether he requires a modification of the work in order to prevent injury. The teacher sees the child at all hours of the day, under every degree of fatigue; she knows his mental status daily, weekly and monthly, and with the knowledge of the child's extra-school life which the school nurse can readily supply she is best able to furnish to the supervisor data for the construction of a physical and mental record of any individual child. Another advantage of having a responsible medical supervisor is that the teacher will refer to him those pupils who are obviously abnormal or who show lack of progress, and she will not assume that any physical imperfection present is necessarily a defect and must be removed. These problems seldom, if ever, require the daily visits of a physician. Many cases can be corrected

readily by the teacher through the knowledge gained from the course of instruction given by the medical supervisor. Parents and the family physician would have greater confidence when the child's abnormality is pointed out, and co-operation with the school would be accepted more readily. The opinion of the medical supervisor would be based upon a knowledge of the child's growth and development from year to year, from grade to grade, and not upon the manifestations of a temporary excitement. Local school authorities would have an official in their department competent to decide the many questions of the order of studies and its relation to fatigue and exhaustion, the duration of work and the duration of recuperation, between the rate and the quality of work, between weariness and fatigue, the doing of pleasurable work and the forced task, — all factors which to-day are as needlessly enervating to the teacher as they are injurious to the child. By the association of the several medical supervisors the state would have a body of experts hardly possible under any other arrangement. Massachusetts has taken an advanced position by requiring compulsory medical examination of all children in her public schools. The responsibilities of this act call for more than yearly statistics of defective eyes, ears, noses, or spines among school children; it imposes the duty of detecting the *cause* and minimizing its effect in every factor of the home life and the school life of the child tending toward retrogression, in order that future generations may regain a mental and physical high standard. To that end the physician in the public school will give his best efforts.

THE PHYSICAL WELFARE OF THE PUBLIC SCHOOL CHILDREN.*

BY GEORGE S. C. BADGER, M.D., BOSTON.

A COMMISSION of five physicians, appointed by the Boston School Committee last June, to report their "opinion as to desirable length of session, periods of recess, curriculum, and on all other matters, relating to the health of children attending the first three grades," made the following recommendations:

I. Regarding school buildings:

(1) That efficient artificial lighting be installed in all school rooms and toilets.

(2) That until such efficient artificial lighting be installed, the masters be empowered to dismiss on dark afternoons those rooms where the light is so dim as to strain the eyes of the pupils.

(3) That the windows be cleaned more frequently, especially during the winter months.

(4) That smooth pavements be laid on the streets adjoining the school buildings to lessen the noise.

II. Regarding the sessions and recesses:

(1) That the present rule of two sessions be continued.

(2) That the afternoon recess be lengthened and devoted to play.

III. Regarding the curriculum:

(1) That games and manual training, so far as possible chosen by the pupils, be introduced in place of the present schedule during the last hour of the afternoon.

IV. That the classes of the first grade be limited to twenty-five; of the second grade to thirty-five; and of the third grade to forty-five members.

V. That special provision be made for the care and study of the backward children, especially in these grades.

VI. That competent trained nurses be appointed to supplement the work of the medical inspectors.

The full report of the commission is being printed as a school document, and contains a discussion of the subjects leading up to our recommendations.

I wish to speak to-night of the introduction of manual training and of directed play into the first three grades, and of the medical inspection of schools.

The commission recommended that manual training and directed play, so far as possible chosen by the pupils, be introduced in the last hour of the afternoon session, in place of the present curriculum. It is during this last hour that the children become fatigued. This is manifested by great restlessness, inability to fix the attention, and sitting with heads on the desks. Their distress is evident and no good work is accomplished. The teachers are almost unanimous in their desire for a change in the work of this hour. Manual work or directed play seems to offer the most desirable change. An important thing is that the children shall have some choice of play and of the work to be done. In this way only can their interest be aroused.

In the fall and spring months the schools with good yard accommodations could conduct these exercises out of doors. The introduction of gardens, already in use in some schools of higher grades, would offer most attractive work for the older ones of these primary grades. Some simple gymnastic apparatus, as swings, balancing boards, together with the introduction of games requiring the co-operation of several children would be valuable. Those more familiar with manual training could suggest work suitable for children of this age. In the winter months this work could be carried on in the school buildings. If properly devised and directed it seems to offer valuable training with the minimum of fatigue.

Many of the schools have good play yards, and at present they are used only during the morning recess of twenty minutes. The plan just suggested would make better use of these valuable school assets, and better health of the pupils would follow. But why limit the use of the yards to the school hours? If the children are enjoying the work or the play at the close of the school hour why not let them play on and stop when they want to? It seems far wiser to allow the children

* Read at the Boston Medical Library meeting, Feb. 13, 1907.

to play together in a protected place under competent supervision than on the streets. Let the yards be open all day and on holidays. The educative value of work and directed play is great, and when conducted out of doors is of decided benefit to the physical welfare of the children.

For schools with no yard accommodations use could be made of the public playgrounds. The work or play must be more or less directed by competent teachers, whether in the school yards or in public playgrounds, and to accomplish this the playgrounds would have to be under the charge of the school committee.

THE MEDICAL INSPECTION OF SCHOOLS.

The physical welfare of the children is looked after by a corps of physicians, whose duty it is to visit the schools daily and examine any pupils considered by the teachers to need the physician's services. No special room is provided for this examination. The inspector visits the rooms only on special request. The children selected for examination are sent to him when he calls. The examination is made and the advice given to the teacher or master, who notifies the parents, if requested to do so, of the diagnosis, and what had best be done. The inspector does not treat the patients.

This is not an inspection by physicians, but by teachers. Yet the medical profession is held responsible. There is a great difference in the attitude of the teachers towards it. In some schools the inspection is good, the teachers being watchful of their children, and anxious to carry out their part of the work. In other schools there is apparent indifference. In one school of three hundred children, there had been no call for the physician's services in three months, and it seems incredible that there were none needing help.

It is impractible to require a complete physical examination of all the school children. Its value does not seem commensurate with the amount of time and work it would take. The trained observer can find much of value on which to base an opinion of bodily health by close observation of the child. It seems safe and fair to believe that children who look well nourished, have good color and good facial expression, who are alert in body and mind, sitting at their desks, or standing or at play, erect and with every appearance of normal development, must be in satisfactory physical health. Why, then, is a complete physical examination of all the children necessary? I do not believe it is necessary. And the condition of the children as noted by the commission does not seem to call for such an examination.

One of the principal duties of the medical inspection is the detection of the contagious diseases of childhood, especially diphtheria, scarlet fever and measles. Many people believed when the work was begun in 1894, and still believe, that the schools are the great sources of infection for these diseases. A study of the reports of the "Medical Inspection of Schools," published by the Boston Board of Health, is interesting and instructive. Eleven reports are available, the first being issued in 1895, the last one in 1906 for the year 1905. In all the public schools of Boston are approximately 100,000 pupils.

The cases of diphtheria, scarlet fever and measles reported as found in the Public Schools are as follows:

Year.	Diphtheria.	Scarlet Fever.	Measles.
1895	77	28	116
1896	26	8	59
1897	30	31	100
1898	8	16	26
1899	13	5	85
1900	23	23	121
1901	9	9	25
1902	7	2	69
1903	32	29	121
1904	11	10	264
1905	1	9	16

There undoubtedly were other cases not detected, but they were probably few in number, as there has been no epidemic of these diseases during these years. The cases escaping detection might have been found by a more thorough system of inspection. Surely the Boston public schools, at least judging from the reports of the school inspectors during the past eleven years, have not been such marked centers for the spread of these three most serious contagious diseases of childhood as has been supposed. The health reports show that the same conditions prevail with regard to the less severe diseases, as mumps, chicken pox and whooping cough.

The introduction of trained nurses into our schools will greatly increase the efficiency of the inspection, and will obviate the disturbance of an examination of all the pupils. The carrying out of proper treatment will be made possible and the absences from school will be greatly shortened.

A nurse might have three or four schools under her supervision. Her frequent visits to the rooms, conferences with the teachers and inspection of the children would tend to find those showing symptoms of sickness, and these could be referred to the inspector for examination. She could take cultures of all complaining of sore throats and from suspicious nasal discharges. That is, the nurse with her special training and experience in sickness, and the teacher with her intimate acquaintance with the pupils would together find the children showing symptoms of sickness.

The vision and hearing of the children are now being systematically tested by the teachers, under the provisions of a law passed by the legislature in 1906. That a large percentage of children with defective vision will be found, I feel certain. In three schools with an attendance of 1,275 pupils, where a nurse has been in attendance during the past year, over 10% of the children have already been fitted to glasses. These children complained of their eyes, and when the vision of all is tested a much larger percentage will be found with defective vision.

The commission found the children a fairly well nourished lot. Inquiry among the teachers satisfied us that but very few cases of real neglect

existed. Some of the children whom the teachers thought underfed or coming to school without breakfast, on investigation were found to have been provided with food which they did not eat.

The adoption by the school committee of the recommendations made by the commission will add to the already great efficiency of our schools, and will better protect and add to the physical welfare of the children.

SCHOOL HYGIENE.*

BY S. H. DURGIN, M.D.,
Chairman of the Boston Board of Health.

School hygiene as it is and as it ought to be is the part of this evening's discussion assigned to me. Briefly stated, school hygiene in Boston has been promoted in the last few years by several important changes made in the interest of the health and comfort of the school children. This has been accomplished in part by better construction and care of the school buildings and their appurtenances, and in part by the closer observation and care for the physical condition of the school children by the teacher and physician. First in the alterations came the abolishment of the old privy vault, which, by several successive gradations, gave way to the modern open work, individual closet and washbowl. Cesspools have been replaced by direct sewer connections. Light and well ventilated basements, useful as recess playrooms in stormy weather, have taken the place of dark and unventilated basements. The fresh air supply for the schoolrooms, instead of being wholly dependent upon the caprices of weather conditions and unaided shafts in the walls (frequently terminating in the attic), is now secured with well constructed air shafts provided with the necessary artificial power to make them effective. The proper seating of children has been agitated and advanced largely by the medical profession and members of the school committee. Excessive overcrowding has been largely relieved. But while the schoolhouse conditions have been greatly improved, the present situation nevertheless calls for the abandonment of some, extensive alterations in others, the construction of many additional houses, and a more liberal allotment of ground for many already in use. Encouragement may be felt in the fact that we have at the present time a Board of Schoolhouse Commissioners with ample scientific qualifications, valuable experience and needful activity. I believe that under these conditions the best work is likely to be advanced as fast as the means may be provided.

The particular attention now given to the physical condition of the school children was begun in 1894. This has consisted in daily visits made by the medical agents of the Board of Health who examined such children as are selected by the teachers as needing the observation and advice of a physician. Diagnoses are made, cases of infectious disease sent home and the teacher advised as to what should be done with the other children who are ill. Examinations for evidence of vaccination, and other special inspections for pediculosis, etc., are made from time to time. The medical agents receive from the health office daily bulletins of all infectious diseases reported and have to do with the isolation of the cases in their several districts and the return of all children to school after an absence or a known exposure to infection.

This primary work is not all that was contemplated and provided for in the start, but has served to stimulate and warrant other cities in this country to adopt it and to extend its usefulness far beyond that reached in our own city. Its highest compliment was given a year ago by our state, whose legislature then made the work compulsory throughout the Commonwealth. This work is now to be considerably extended and will embrace much which has not hitherto been included in our requirements.

The medical service to be most effective should be given daily, and if the teachers and the coming school nurse do their best, many times the present number of ill and defective children who are referred to the physician will be found and so referred to him in the future.

The sight and hearing of every child in school is to be tested once in each school year by the teachers, and also examined by the school physician for any other defect which may interfere with his school work.

The inspector will see all cases referred to him by the teacher or nurse, all children who have been absent from school for more than two days, all children returning after a known exposure to infection, all children previously ordered under treatment and showing no evidence of treatment. Cultures will be taken in all cases of sore throats. All cases of acute infectious disease are to be immediately excluded and reported to the Board of Health. All children in whose families an infectious disease exists will be excluded until certified by the medical inspector.

The best results from the medical inspector's work in the schools will be obtained only when nurses are employed to aid the teacher in finding sick and defective children and in securing their treatment in the home or in the dispensary. The services of nurses are fairly assured. The nurses (if secured) will be appointed by the school board, and work in conjunction with the school physician.

* Read at the Boston Medical Library meeting, Feb. 13, 1907.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

APHASIA.

In a recent editorial in this Journal[1] the revolutionary views upon the subject of aphasia recently advanced by Marie were discussed. Since that time, as might naturally be expected,

[1] Bost. Med. and Surg. Jour., clv, 387, Oct. 4, 1906.

his theories have received considerable adverse criticism, and he has defended his position with much force. In the discussion upon the subject it has been forgotten that the old theories of Lichtheim, which sought to establish upon a purely theoretical basis various forms of conduction aphasia, both sub-cortical and trans-cortical, were subjected to a very thorough and destructive criticism over fifteen years ago by Freud,[2] who showed that the actual cases could not be brought under the elaborate schemes proposed by Lichtheim, and that there were no reported cases which corresponded exactly to the theoretical forms of aphasia he described. As a result of that analysis, Freud proposed another classification of aphasia; first, a verbal aphasia, in which merely the associations between the different elements of the verbal idea were disturbed, and, second, an asymbolic aphasia, in which the association between the idea of the word and the idea of the object was affected. Freud also recognized that there were disturbances in the recognition of objects, to which he gave the name of agnosis, and considered that it was possible that agnostic disturbances, which could only arise through extensive lesions of the cortex in both hemispheres, might produce a disturbance of speech when the incentive to spontaneous speech arose from the association of the object.

The elaborate schemes of Lichtheim and other German and English writers have of late years been abandoned for the more simple theories advocated by Dejerine and his pupils, Bernheim and Mirallié, and it is therefore not remarkable that the views of Marie should be sharply criticised by him. As our readers will remember, Marie[3] in his first paper maintained that Broca's convolution played no special part in the function of language, as there were many cases in which there was a lesion of that convolution without aphasia, and other cases of true motor aphasia without any lesion of Broca's convolution. Broca's aphasia is no more than the so-called sensory aphasia of Wernicke with anarthria, but Wernicke's aphasia is always associated with a considerable intellectual defect, and the disturbance of speech is due to that rather than to the involvement of any special speech centres. Dejerine[4] maintains, however, that in the cases of pure motor aphasia and pure word blindness and word deafness there is no failure of the intelligence; and in other cases the suppression of the images of language is the cause of the intellectual deficit. The mental failure varies greatly in the cases of aphasia, being more marked in the sensory forms, but varying with the extent of the lesion, and when the aphasia is cured the intelligence returns. Dejerine argues that the mental disturbance cannot explain such highly specialized troubles of speech, and the failure of intelligence cannot explain such particular troubles of speech as paraphasia and jargon aphasia, which are very readily explained by the suppression of sensory images of language, especially of the auditory image. In sensory aphasia internal speech is affected, and as the function of Broca's convolution is no longer regulated by the sensory images, the words no longer correspond to the ideas which the subject wishes to express. If Marie's views were correct, there should be similar disturbances in lesions of the right hemisphere, but the mental failure which Marie claims is seen only in lesions of the left hemisphere when the speech centres are involved. Furthermore, in various forms of mental disease attended with considerable mental failure, such as dementia and general paralysis, aphasia should be exceedingly common, but it is seen only when there is in addition some focal lesion.

In a second article[5] Dejerine argues that the cases of lesion of Broca's convolution without motor aphasia are not clearly proven. We cannot prove Broca's convolution to be the sole centre of speech, yet there is a centre in that vicinity lesion of which causes motor aphasia apart from any lesion of the temporal lobe. There is no connection between the motor aphasic who cannot speak because he has lost the memory of the movements necessary for the articulation of words and the anarthric patient who pronounces with difficulty by reason of paralysis of the muscles. Dejerine believes that in motor aphasia there may be an apparent sensory loss from defective evocation of auditory verbal images, but this sensory loss is very much less than in true sensory aphasia, and is very easy to be distinguished. He maintains, furthermore, that there are certainly cases of Broca's aphasia where there has been a complete preservation of intelligence, and cites two cases as proven,—one in his own service, reported by Bernheim, and another from the literature, reported by Ladame,—where there was no sensory aphasia and no paralysis. The lenticular nucleus and Wernicke's convolution were intact. Broca's convolution was affected. The patient was aphasic, but the intelligence was perfectly normal. He maintains, then, that there is a motor aphasia due to lesion of Broca's convolution, just as there is a sensory aphasia due to lesion of Wernicke's convolution. In either form, the troubles of the intelligence when they exist, which they do not always do, have absolutely nothing to do with the symptoms presented by the patient, and in Broca's aphasia the troubles of speech have no relation to anarthria.

To this Marie[6] replies that Dejerine's distinction between cortical and sub-cortical aphasias is absolutely theoretical and schematic; that no case of pure word deafness, as described by Dejerine, is known to him either in his personal experience or in the literature. The so-called "word deafness" is merely a failure of comprehension of language; since Wernicke's centre is an intellectual centre, and not a purely sensory centre. He knows of no case of word deafness without mental defect which also involves the comprehension of written language. He denies that there is any word deafness where there is also

[2] Zur Auffassung der Aphasien. Leipzig, 1891.
[3] La Semaine Méd., May 23, 1906.
[4] La Presse Méd., July 11, 1906.
[5] La Presse Méd., July 18, 1906.
[6] La Semaine Méd., Oct. 17, 1906.

an absolute preservation of intelligence, of the power of reading and writing, and where the auditory acuteness is intact. When the patient does not understand, this is due not to a defect in the auditory verbal centre, but to a defect of comprehension. Intellectual deficit is a part of aphasia. This deficit is somewhat specialized in that it affects the stock of things which have been learned by didactic processes. Such deficit can be revealed only by methodical examination, and at first sight is not evident. Intelligence is not one simple function. The failure of the intellect in general paralysis is quite different, and the special failure from the lesion in the temporal lobe is not to be compared with the brute deficit of general paralysis. The deficit of the feeble minded has still another quality. There is, however, such a symptom as alexia, which is due to a lesion of the visual tract combined with an alteration in the temporal lobe. It is, however, absurd to suppose that in the few generations in which the average man has been able to read, a true visual verbal centre could be developed. Pure motor aphasia is not an aphasia but an anarthria, and anarthria is not an actual paralysis, but a loss of the power of special co-ordination similar to abasia. In anarthria the lesion is situated in the lenticular region, and the third frontal plays no special part.

Finally, Marie subjects the two cases quoted by Dejerine to a critical analysis as the only two cases of so-called pure motor aphasia which Dejerine could find, and shows that they by no means substantiate Dejerine's claims. In Bernheim's case, which Dejerine quotes as being a case of pure motor aphasia with normal intelligence, no sensory disturbance, and with Wernicke's convolution intact, there was really mental impairment, sensory disturbance and Wernicke's convolution was affected. In the other case of Ladame's, the case had not been fully reported, and showed lesions beyond those which Dejerine claims.

Marie maintains, then, that Wernicke's convolution is the intellectual centre of language, not a purely sensory centre, and the deficit varies with the extent of the lesion. There is no room for the distinction between cortical and sub-cortical aphasia, for all cortical lesions affect the subcortical region as well. There is an intrinsic aphasia in which Wernicke's convolution is involved, and an extrinsic aphasia in which this convolution is not directly involved, but there is an anarthria from a lesion in the lenticular region, or alexia from a lesion involving the visual centres. The true centre of speech is in the temporal lobe, and is not sensory, but intellectual. The lesion disturbs the comprehension of speech, the ability to read and write, and all notions of a didactic order. In anarthria there is a loss of speech with preservation of comprehension of speech and the ability to read and write.

In a subsequent paper Marie[7] goes back to the two cases upon which Broca based his theory of motor aphasia, and examines the brains, which are still preserved in the Musée Dupuytren. In the autopsy of Broca's first case there was a large lesion in the Sylvian region involving the third frontal convolution, and also Wernicke's zone. Broca believed that the gradual progress of the symptoms was shown by the greater or less lesion in the brain, and in this case the disturbance of speech was the first symptom, and the third frontal convolution was the part most destroyed. The second case was a senile atrophy of the brain, which made Broca — partly from the phrenological theories of Gall — believe in the existence of a lesion in the foot of the third frontal. This patient seems never to have had aphasia.

These articles have been followed by considerable acrimonious correspondence on the part of Dejerine,[8] Ladame[9] and Marie[10] with reference to the two cases which Dejerine quoted in support of his views, but concerning which Marie seems to have demonstrated pretty clearly that neither of them can be regarded as strictly cases of pure motor aphasia, with a lesion limited to Broca's convolution.

Monakow[11] reviews the whole subject in a very judicial manner, partly upon the basis of fifteen personal cases with autopsy observed in the last year, and concludes that the number of negative cases is considerably larger than is ordinarily supposed, and the number is still greater of cases in which, although the lesion is either stationary or increasing, the aphasic disturbances disappear. Paradoxical cases, where the aphasia is chiefly sensory with destruction of the third frontal convolution, or motor with the lesion in the temporal lobe, are by no means exceptional. He concludes that the anatomical conditions for the occurrence of special forms of aphasia are uncertain. The break in conduction is by no means sufficient to explain the different symptoms of aphasia, and he is disposed to lay more weight than formerly on the nature of the morbid process and the manner of its onset. The restriction of the function of speech in these cases, on the hypothesis of the vicarious action of other parts of the brain, is hardly tenable, for it implies that certain portions of the brain can show increased function at a time — for example, after apoplexy — when the healthy cortex has enough to do to maintain its original functions. He contends that we must determine much more accurately than formerly what is the smallest amount of clinical symptoms which are, under all circumstances and in all individuals, produced by a purely mechanical destruction of a definite part of the brain, and also by what lesions or processes the more variable and temporary aphasic symptoms are excited.

Beside the local pathological processes he calls attention to a new physiological form of remote action to which he gives the name of "diaschisis," by which he means a temporary diversion of nervous activity from the local interruption of or deficit in a tract of fibres which direct or materially support any function. We can conceive that such

[7] La Semaine Méd., Nov. 28, 1906.

[8] La Presse Méd., Nov. 17, 1906.
[9] *Ibid.*, Dec. 22, 1906.
[10] *Ibid.*, Jan. 12, 1907.
[11] Neurolog. Centralbl., xxv, 1026, Nov. 16, 1906.

a division may occur when the break in conduction in one chain of fibers or the destruction of projection or association fibers may indirectly inhibit or impair the action in another chain of fibers which stand in relation to them but have not been injured. Thus, for example, in cerebral apoplexy the healthy spinal cord may be temporarily so far affected that the spinal reflexes are at first lost. The initial aphasic symptoms are made up of a union of permanent symptoms upon the one hand, and of temporary symptoms upon the other. The permanent symptoms in a lesion of Broca's convolution are slowness of speech, difficulty in the formation of speech, hesitating speech, and, where the lesion is large, dumbness without agraphia, but there is no anarthria. In a lesion of Wernicke's convolution there is difficulty and slowness of speech, paraphasia, logorrhea and difficulty in utterance, perseveration and for a short time symptoms of partial deafness, with slowness in reading and writing. In lesion of both temporal convolutions there is probably cortical deafness. The temporary aphasic symptoms are represented by those symptoms which are at present termed transcortical or cortical. Among them are the disturbances of the complicated processes of the evocation of sounds, then those of the understanding of words and the ability to put words together, the implication of the so-called internal speech. To these may be added other disturbances of the relations between the word and object, and such disturbances as psychical paralysis, soul blindness and soul deafness, and many disturbances of the intellect. He gives a diagram explaining the action of diaschisis, in which he shows how a lesion of a definite portion of the brain may affect neurones going to other parts of the cortex, both in the same and in the opposite hemispheres, and temporarily impair the action of a large number of other neurones in the healthy cortex, which are brought into more or less direct connection with the neurones going to and coming from the diseased cortex. Under favorable conditions these healthy portions of the cortex soon resume their functions, but in other cases, many chains of neurones being injured, they may for a long time be considerably affected, and it is possible that through such varying processes, either by their involvement of the component mechanisms of speech or by other influences, we may ascribe many special forms of aphasia.

By this theory we see that, under normal conditions, in producing the different mechanisms of speech, many cortical territories are involved, a number much greater than has formerly been assumed. If the cerebral lesion is purely local, and all the rest of the cortex has a healthy character, then a large part of the loss of speech may in a very short time disappear. While disagreeing with Marie's general conclusions, Monakow gives him credit for having called attention to the uncertainty of our present theories as to aphasia, but he believes that the present theory must be replaced by a better one which is based more upon physiological symptoms, and that the principle of diaschisis will be of help in this direction.

While it may be too soon to accept the views laid down by Marie, or the principle of diaschisis advanced by Monakow, the two seem to have proved conclusively that the older theories in regard to aphasia rest on a very uncertain foundation. In the recent discussion in Philadelphia, at the joint meeting of the New York and Philadelphia neurological societies, several speakers pointed out what has been the experience probably of every observer, that while it was possible to draw elaborate schemes showing the function of language, and to establish theoretically different forms of aphasia corresponding to these schemes, yet an actual study of clinical cases shows that the individual case never fits the scheme. The elaborate theoretical schemes of Lichtheim have practically been abandoned, and the distinctions advanced by Dejerine seem, in the light of the facts brought forward by Monakow and Marie, to be no longer tenable.

Reports of Societies.

BOSTON MEDICAL LIBRARY MEETING.

In Conjunction with the Suffolk District Branch of the Massachusetts Medical Society.

Medical Section.

R. C. Cabot, M.D., chairman; E. A. Locke, M. D., secretary.

The following papers were read:[1]

PHYSICAL TRAINING IN THE BOSTON PUBLIC SCHOOLS,

by Dr. James B. Fitzgerald, Director of Physical Training in the Boston Public Schools.

SCHOOL HYGIENE — AS IT IS AND AS IT OUGHT TO BE,

by Dr. S. H. Durgin, Chairman of the Boston Board of Health.

PHYSICAL WELFARE OF PUBLIC SCHOOL CHILDREN INVESTIGATED BY A COMMITTEE OF PHYSICIANS,

by Dr. George S. C. Badger, Boston.

MEDICAL SUPERVISION VERSUS MEDICAL INSPECTION OF THE PUBLIC SCHOOLS,[1]

by Dr. Thos. B. Harrington, Lowell.

DISCUSSION.

Mr. George H. Martin, Commissioner of Education, State of Massachusetts: The essential clause of the new medical law has just been read in your hearing. The pith of the whole law so far as it is likely to be most effective is that the children are to be examined annually for any defect that may interfere with their school work.

Now that law is on the statute books, and school physicians must be appointed to carry it out. It seemed to Governor Guild, I do not know but what it was suggested to him by some physicians, that in order to make this law effective throughout the state, it was very desirable that there should be some authoritative interpretation of that law, and so the governor appointed a committee of nine people, three members of the School Board of Health, three members of the State Board of Education and three physicians of the state to formulate a circular regarding the operation of this law for the guidance of the school physicians who

[1] See pages 662, 664, 667 and 669.

might be appointed under this law. That was the purpose at first. That committee of nine appointed a sub-committee of three for the purpose of preparing such a circular. In the effort to do that this committee of three held conferences with the specialists in all the departments of children's diseases.

We met every day, usually for an hour or two, with groups of men, heads of departments in the medical schools and hospitals of Boston. We met the heart men, dermatologists, laryngologists, neurologists, specialists in children's diseases and in contagious diseases, etc., until I, being the only layman, told them that I proposed to apply for a degree in medicine when the thing was over.

These questions were put to these gentlemen: "In your department of work what are the defects or diseases from which school children are likely to be suffering so as to interfere with their school work? Will you state in the plainest possible way the indications of these troubles?" As soon as we began to do this we found that in practice the observation of the children must be done by the teachers. In most cases the physicians would not visit the schools every day. They would visit them mainly when called upon by the teacher.

So we decided that this circular must be of such a character that it could be used by the teachers throughout the state. Accordingly these groups of specialists formulated what they thought ought to go into this circular and that material was taken by the committee and arranged and is now in the hands of the printer. It is our purpose to have it distributed universally throughout the state so that every teacher and physician in the state will have a copy. It is said by physicians to be a most admirable system. It deals with the ordinary diseases of the children in a general way; it deals with contagious and throat diseases and a brief statement from the orthopedic men; quite an extended statement in regard to mental defects of various kinds prepared by neurologists and something of general school hygiene.

You will see that this is likely to be a most efficient aid in the carrying out of this law, and my own judgment is that it will be a useful document to put into the families of the state as well as into the school itself. I think it will commend itself to the physicians of the state since it goes out with this weight of authority. That is as far as the matter has gone up to the present time.

Now another matter that I should like to speak of for a moment. We had thought that the difficulties which this law was meant to remedy were confined chiefly to the cities and we had felt that in the better schools of the city there would be few difficulties of the sort which need medical inspection, but as this work proceeds we are finding that troubles of this sort are not confined to congested parts of the city. They are everywhere, although certain forms of disabilities have become more common throughout the state in consequence of the recent immigration. The families that are coming into the country towns from Europe bring with them home habits which are interfering very seriously with the school work of the state.

May I also say that in naming the classes of doctors who assisted us in framing our circular I omitted to speak of the "teeth doctors," but we have a very clear and positive statement from them in regard to the necessity for the care of the teeth which will be incorporated in this little pamphlet of which I have spoken. May I also say that there is to be held in London this summer, from the 5th to the 9th of August, an International Conference of great value on the subject of School Hygiene. The committee represents every organization in England and Great Britain and there are co-operating committees representing every country in Europe. It is a five-days' meeting. I hope that the physicians of Boston, many of them, may be represented there and that we may have brought back to us the results of that great conference.

DR. ARTHUR C. JELLY: Graded classes are well suited to the average child in the public schools, but other and separate classes are needed for children who cannot attain the average standard. In Boston these have been called "ungraded classes"; and they have been established from time to time until now I believe there are about seventy ungraded classes. First of all there are a great many foreign-born children who do not know our language and so are unable to do the school work of the ordinary grade. They require special instruction in English and they, therefore, are put into this ungraded class. Children who have illnesses frequently fall behind and cannot keep their grades; other children develop more slowly than the average and thus fall behind. Others again develop irregularly, *i. e.*, they develop in some directions quite rapidly and in others very slowly. Still other children have handicaps in the way of defective eyesight or defective hearing and therefore are unable to do their best work in school.

Classes are formed for all these groups of children. I do not know when these classes were started in Boston but in 1898 three *other* special classes were formed for training children who were mentally deficient. In 1902 the superintendent at the time asked me to take charge of the supervision of the existing classes, and after a while more classes were formed until there are now seven in all. They take care of 105 children. I regret to say that no classes have been formed since that time, but we have worked out certain problems in ways which have been very useful and have prepared us, I think, to some extent for the work which is bound to come.

The first classes were formed without medical advice and were selected by the teachers who were to take charge of the children. They went about through the public schools and selected cases that were clearly defective. When I took charge of the work in 1902 my first effort was to create two movements in the classes. Up to that time the children had remained in one class; none of them had been pushed ahead and none had been sent to institutions; hence the work was very discouraging, and I felt that it was important to take the low grade cases, study them and see if they could be improved or not and bring about as much improvement as possible. Undoubtedly many of those children are better off in the institution at Waverley.

You can surmise that with the low grade cases the home conditions were bound to be a detriment to the child, and led to habits of the worst sort, and, therefore, if they could be placed in the institutions it would be better for them. On the other hand, the teachers should have material of a more promising sort in order that they may be encouraged in their work. Hence I have endeavored to create *two currents* in the classes, one current (from the lower end among those least improbable) towards Waverley, and the other current from the upper or more intelligent end back to the graded classes. We have thus been enabled to bring about so much improvement that some of the children have been able to do grade work. On the other hand we have become so well acquainted with the parents in these intimate relations that many of them have been induced to send their children to the institutional school, and a great deal has been accomplished in that way.

The work has developed the fact that there were a

great many symptoms of medical significance which were not noted by the teachers at all, and I have endeavored so far as possible to examine each child in the presence of the grade teachers who had had the child previously and to point out to her or to him the diagnostic points. I am pleased to say that a great many teachers now recognize and recommend to the ungraded classes a child much less defective than the children whom they thought suitable for this sort of work three or four years ago. The classes have not been multiplied as much as we could have wished, but it seems to me that the work is one of great concern to us all and one for which we have hope for the future.

Dr. Joel E. Goldthwait: Mr. Chairman, ladies and gentlemen, I should like to give you an impression of the problems with which the school board is confronted with the idea of trying to develop a fairer attitude to the school board than perhaps we, as a profession, have shown.

In the first place, I think we, as a profession, are apt to judge the effects of the school system by a few individual cases. We see one child, and a little later on another child, with evident signs of breakdown or defect of one sort or another, and we are apt to judge, it seems to me, that, therefore, the school system is at fault. Impressions thus formed are often unjust impressions. It seems to me that in justice to the school board a broader outlook is important. I speak from my own experience.

On class inspection the problems which were presented to our committee were such that it was not a matter of surprise that an occasional child might be injured by the system. The surprise was that not more children showed signs of distress in any system that could be developed when the number grouped for training is so large. For instance in the three lowest grades there are about 40,000 children, all nations being represented, some speaking English, some not, some coming from rich, some from poor, families. The school committee must work out a system that can satisfactorily meet the requirements of all those children. The surprise to us has been that so much good study and such satisfactory work had been developed.

There are conditions which can be improved. Some of them have been indicated in the criticisms which have been presented to-night. With the suggestions which we as a temperate body can make to the school board and to the teachers a much better system can be developed. My plea to-night is that we should be more temperate in the way in which we criticise our school board. The school board and the teachers as a body have impressed us as being a remarkable group of people, with the one desire of doing the best they knew how for the children. In so large a group there will be incompetent ones, of course, and with such a body of teachers it is not to be wondered at that there are certain ones that are distinctly inferior, but as a group of people it seems to us that they were remarkably efficient. It was interesting to see that practically all the suggestions which our committee made to the committee of masters which was also appointed by the school committee, had already been thought of by the masters and were already being worked out by them. In other words, it seems to me we have already a remarkably good school system but one which by calm, just criticism and advice upon our part can be made distinctly better.

Dr. Wm. H. Potter: In a recent work published in Strassburg, Germany, where great attention has been given to the examination of public school children as regards their teeth dental defects are spoken of as *the* illness of the people, *the* common illness. Now it is a fact, I suppose, that caries of the teeth is one of the most prevalent illnesses that our school children are suffering with. Why should not special attention be given to it? We have heard here to-night of the many disabling diseases with which school children are afflicted. To those who have means of knowing the prevalence of diseases of the teeth, it is perfectly evident that here we have conditions which most often disable the children. Perhaps the disability is not so evident as a case of diphtheria or scarlet fever; it works more insidiously. It affects first the powers of mastication and then the powers of digestion and then the powers of nutrition. It has been found by examination that children with poor teeth weighed less than children with good teeth.

Investigations of this sort have induced some towns and cities to go into the examination of the teeth of children as a whole and to give advice.

About a year ago I had the pleasure of superintending an examination in the Pierce School in the town of Brookline. Here is the result. We classified the teeth into good teeth, fair teeth and poor teeth. In the Pierce School containing about 700 pupils, 50% were classified as having poor teeth, 25% as having fair teeth and only 25% had good teeth. Now with that record here in Brookline, what must be the record in the much less favorable parts of Boston?

Dr. C. P. Putnam: There is one part of the school children in the city of Boston who have, I might almost say, the good fortune to have committed some minor offense so that they have been sent to the Parental School. There are certain disadvantages in this but there is one advantage for those children, who number in the vicinity of 250. There is a dentist at the Parental School who does an enormous amount of work on the children's teeth. They are systematically and thoroughly cleaned once a year and possibly twice. The eyes are examined and many operations are done on their ears. They have also operations of other sorts done. A great many of the bad teeth are extracted which leaves the children in a much better condition. I mention this only as further evidence as to how much ought to be done to the whole number of school children outside of the Parental School which is under the care of the Board of Trustees for the city of Boston.

Mr. Joseph Lee: The Massachusetts Civic League has introduced House Bill No. 536, providing that the school committee of Boston shall carry on play and physical education in its own buildings and yards and upon the playgrounds in charge of the Park Department, and providing it with money for that purpose.

The immediate practical effect of the bill, if it passes, will be that the school committee will carry on play in its own school yards during the summer, and will carry it on upon the playgrounds now under the charge of the Park Department (about 20 of which are available) all the year round, employing for this purpose volunteers from among its own teachers, with due supervision of a more specialized sort. The bill provides a special appropriation of $50,000, chiefly to pay the teachers for this extra work.

This bill, placing the playgrounds of Boston where they belong, as part of the public school system, is a logical development of the policy pursued by the league since the beginning of its playground work in 1899, the policy, namely, of developing the playground as an educational institution and connecting it as closely as possible with the public schools. If this bill is passed, it will make Boston once again a pioneer in taking a great step forward in the development of our national system of education.

That our public playgrounds should have supervision of some sort is coming to be generally recognized,

owing in great measure to the demonstration of the benefits of supervision that the league has made, first at North End Beach, and afterwards on Columbus Avenue Playground and on the Public Garden. The testimony of neighbors, of settlement workers, of school teachers, and of police captains is unanimous to the effect that a properly supervised playground is of immense benefit to the children. Playgrounds without supervision, on the other hand, are apt to be monopolized by men and bigger boys, who take away the bats and balls from the smaller ones and otherwise molest them. Mothers do not dare to allow their children to go to such playgrounds; and so far as they are used, it is in the crowded districts largely for shooting craps rather than for strenuous play.

Our playgrounds must be supervised by somebody. The only question is by whom. A bill (Senate No. 152) has been introduced by Senator Linehan, providing that the baths, gymnasiums and playgrounds shall be under the charge of a single paid commissioner appointed by the mayor with the advice and consent of the aldermen. The passage of this bill would be a step in the wrong direction. Its effect would be to bring the playgrounds more into politics than they are, or are likely to become, under the Park Department, in whose charge they now are.

The proper body to carry on the playgrounds is the school committee.

It is already to a great extent the business of the school committee to supervise the children's play and physical development. It provides exercise, including games, during school hours. It has its school yards in which it supervises play in recess, which it uses in connection with its vacation schools, and which should be used and will be used, if this bill becomes a law, for play in summer. It will undoubtedly soon have play and games in the yards, at least of the primary schools in the afternoon, in accordance with the recommendations of its medical commission which recently reported.

The general physical oversight over the children already exercised by the school committee will become much more important when school nurses have been provided, and when our medical inspection law of last year is in other respects more fully carried out. It is very important that the play and physical exercise of the child shall be related to the physical examination and its discoveries.

The teachers are the right people to have charge of the playgrounds. Such is the lesson of experience. The Massachusetts Emergency and Hygiene Association, which has for twenty-one years carried on the sand gardens in the school yards in Boston, has found that school teachers are the best people to have charge of the work, and the experience in New York and elsewhere has been the same. There is no doubt whatever of the ability of the teachers to do the work. The supervision of play out of doors in the afternoon, on Saturdays, and during vacations, will, with proper interchange between different sets of teachers, be much less exhausting than teaching evening school, which is carried on indoors and requires much more preparation.

And the teachers are the kind of people to whom we should naturally look for work of this kind.

What is wanted on the playground is not the teaching of baseball (it is difficult to prevent a boy from acquiring that accomplishment under any conditions) but the influence of a man *or* woman of high character. Children are very imitative, it is the incidental teaching by example that counts, especially on the moral side, and nowhere does example count more than on the playground. The school-teachers are men and women of higher character than could be found for this work among any other class, far higher on the average than a single paid commissioner could ever hope to enlist. Such a commissioner could not properly afford to pay such high salaries as the teachers would receive when to their present salary is added extra payment for doing this special work. The teachers are members of a great and respected profession, with a professional standard and a remarkable professional enthusiasm behind them. They are men and women who have elected education as their vocation and have to pass difficult examinations and in most instances to do some teaching before they are employed in the Boston schools. They are the kind of people to whom our citizens are glad to intrust their children, whether during school hours or at other times. The same could not in most instances be said of instructors who, there is reason to fear, would be selected partly for political considerations.

Teachers are not only men and women of high character, they are trained educators. And the direction of play is largely an educational proposition. It is not only important on a playground to keep order and to see that the force of tyranny and anarchy are held in check sufficiently to allow life to go on. It is important, also, to know when to interfere and when to let alone; when to make suggestions and when to leave the boys and girls to work out their own solutions for themselves. These are educational problems. The whole question of the supervision of play is a problem in the growth and training of character and personality, and that is the fundamental problem of all education, the problem with which it is the teacher's special business to deal.

The teachers, moreover, are the only people in the world who can do the most important single thing that there is to be done in this whole matter, namely, the getting out on to the playground of those children who need play the most and who now get the least of it, the ones who are not specialists in football or baseball, but who are shy and backward and undeveloped upon the physical side and in the mental and moral qualities which play is especially calculated to develop.

Finally, having charge of the playgrounds will be of the greatest possible benefit to the schools themselves. A teacher can often learn more about a boy in fifteen minutes playing football with him than he could do in many weeks of school teaching. It is the difference between seeing the creature in his natural habitat and studying him in a menagerie. The relations between the teachers and the children will become closer and more fruitful when they meet on the playground as well as in the school. As a successful boarding school teacher has put it, "When you begin to play with the boys on the ball field, the problem of discipline disappears." Indeed, you cannot educate children unless you take account of the whole child. The tendency of education at the present time, what we now mean by it, is the development of strong, honest, effective men and women, not the imparting of a certain amount of knowledge. The school will never perform its true function, will never get at the whole child, so long as it leaves the most vital part of him, that which is developed and expressed in his play, outside of its influence and observation.

The expense involved in this bill ($50,000 a year, or about 50 cents for each child in the public schools) is an expense to which we must go if we are to get the benefit of the great expenditures already made for the playgrounds. The cost of the 21 playgrounds in the charge of the Park Department, together with Wood Island Park, Charlesbank and Franklin Field (which last three are also partly parks) has been $3,315,000. The expense of maintenance is $53,000 a year. We ought

either to spend the additional amount necessary to make these playgrounds useful, or we ought to sell them and save interest, the present expense of maintenance, and the loss of taxable property.

Book Review.

The Treatment of Diseases of the Digestive System. By ROBERT SAUNDBY, M.D., M.Sc., LL.D., F.R.C.P., Professor of Medicine in the University of Birmingham, etc. London: Charles Griffin and Co., Limited. Philadelphia: J. B. Lippincott Co. 1906.

This little volume of 126 pages contains many practical points upon the treatment of diseases of the digestive tract. On the whole it is fairly well up to date, though the recent German work on the treatment of ulcer of the stomach and the investigation of intestinal diseases by the Schmidt and Strasburger diet has not been adequately considered.

Clinical Bacteriology and Hematology for Practitioners. Being the second edition of *A Handbook of Bacteriological Diagnosis for Practitioners.* By W. D'ESTE EMERY, M.D., B.Sc. Lond., Clinical Pathologist to King's College Hospital. Philadelphia: P. Blakiston's Son & Co. 1906.

It is a pleasure to commend this admirable work to practitioners. On every page are indications that the author has a first-hand knowledge of clinical pathology. The plates are excellent and will be found a real help to the beginner in identifying his microscopical findings. The section devoted to the blood is brief but the essentials of the subfect are well presented. The estimation of the opsonic power of the blood is described. For determining the percentage of hemoglobin the author recommends Haldane's hemoglobinometer. He agrees with most students of hematology that Tallqvist's method is too inaccurate even for rough clinical work. A better description of normoblasts and megaloblasts will be found in this small volume than in the authoritative work of Grawitz. Twelve pages are devoted to cyto-diagnosis. There is no section devoted to the bacteriology of the feces.

The Medical Epitome Series. Pathology General and Special: A Manual for Students and Practitioners. By JOHN STENHOUSE, M.A., B.Sc. Edin., M.B. Tor., formerly Demonstrator of Pathology, University of Toronto, Toronto, Canada, and JOHN FERGUSON, M.A., M.D. Tor., Senior Physician, Western Hospital. Series edited by VICTOR COX PEDERSEN, A.M., M.D., Lecturer in Surgery at the New York Polyclinic Medical School and Hospital. Philadelphia and New York: Lea Brothers & Co. 1906.

The authors have undertaken the task of presenting in 265 small pages an authoritative statement of the essentials of pathology. The attempt has been made to cover both general and special pathology and there are sections on the performance of autopsies and histological technique. We cannot agree with the editor of this series that the book before us combines brevity of statement with clearness and comprehensiveness. Accuracy is certainly lacking.

Phlebitis and Thrombosis. The Hunterian Lectures delivered before the Royal College of Surgeons of England in March, 1906. By WARRINGTON HAWARD, F.R.C.S. Eng., Hunterian Professor of Surgery and Pathology in the Royal College of Surgeons of England; Consulting Surgeon to St. George's Hospital; president of the Royal Medical and Chirurgical Society. New York: William Wood & Co. 1906.

The admirable lectures on phlebitis and thrombosis delivered last year before the Royal College of Surgeons have been issued in book form. They contain much of interest and value, alike for physicians, surgeons and pathologists. In addition to an analysis of the cases of thrombosis and pulmonary embolism that have been observed at autopsy during the last ten years at St. George's Hospital, the monograph includes the results of a careful study of the English and American literature. Many interesting cases have been collected and some of the author's own cases, hitherto unpublished, enhance the value of this excellent volume. We wish there were more clinical monographs of this high order published in English.

Applied Bacteriology. Revised and edited by CRESACRE G. MOOR, M.A. Cantab., F.I.C., formerly Public Analyst for Exeter, and Senior Demonstrator in Public Health, King's College, London, with the co-operation of RICHARD TANNER HEWLETT, M.D., F.R.C.P., D.P.H., Professor of Bacteriology, King's College, London; formerly Bacteriologist to the Lister Institute. Third edition. New York: William Wood & Co. 1906.

This is a well written and well printed book. It contains some excellent sections. Considerable information not found in other manuals is presented. Nevertheless, the work, as a whole, is disappointing. Although the volume was prepared to meet the needs of students of public health, workers in laboratories of hygiene will turn to it in vain for some wellknown methods of practical value and find others described so briefly and incompletely as to be well nigh valueless. For example, the v. Drigalski-Conradi method of isolating typhoid bacilli from water, feces and urine is most imperfectly described. This is rendered less excusable by the lack of a reference to the original article. Considerable space is devoted to old methods now no longer used.

The section on disinfectants is one of the best in the book.

THE BOSTON

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"THE CROWBAR CASE."

The recent death of Dr. John M. Harlow, of Woburn, Mass., referred to in detail in another column, recalls the extraordinary case with which he had the good fortune to be associated during the earlier years of his medical practice, and an account of which was first published in this Journal, in November, 1848 (Vol. 39, page 389). Dr. Henry J. Bigelow, then professor of surgery at Harvard University, took a keen interest in the progress of the case, and two years later a subsequent report was published with Dr. Bigelow in the *American Journal of the American Sciences*. At the meeting of the Massachusetts Medical Society, held June 3, 1868, twenty years after the accident, Dr. Harlow published a final report of the case, tracing the history of the patient, Gage, from the time of the receipt of the injury to his death.

It is hardly necessary to state that the accident which caused such wide and varied comment, not only in this country, but abroad, was occasioned by the passage of a tamping iron through the head of the man, Gage, destroying in its passage one eye and a large part of one frontal lobe, the iron bar being recovered some distance away. After many vicissitudes, and a somewhat protracted convalescence, during which, from our present point of view, as in fact, Dr. Harlow also thought, it must be conceded that nature was the chief restorer, Gage recovered, somewhat the worse for his experience, both physically and mentally. He died in California, May 21, 1861, thirteen years after the receipt of his injury. Fortunately for science and for the alleviation of a widely prevailing skepticism, his skull was returned to Dr. Harlow, who, with admirable public spirit, later deposited it, with the iron bar, in the Warren Museum of the Harvard Medical School where it may now be seen by any who may be interested.

It is not a matter of surprise that this case was at first received with much doubt, and that for many years, particularly in Europe, the whole story was received as a vagary of the American imagination. When the patient recovered sufficiently from the immediate effects of the accident, he came to Boston and was under the observation of Dr. Bigelow for about two months. It was no doubt largely due to Dr. Bigelow's conviction and influence that the case was accepted even with halting belief. During the nearly sixty years which have intervened other cases, similar but none so striking as this, have done their share toward proving the possibility of such an accident with preservation of life; and now it is accepted as a fact by all those who have taken the trouble to investigate it.

From our present point of view undoubtedly one of the most extraordinary aspects of the case is the fact that the patient survived in spite of various septic complications on the part of the brain, which, under ordinary circumstances, even at the present time, would probably have proved fatal. We quote, for example, from Dr. Harlow's final report this statement:

"This fungus first made its appearance on the 19th, six days after the injury; also large fungi pushing up rapidly from the wounded brain, and coming out at the opening in the top of the head. On the 27th, the swelling upon the forehead fluctuated. The exhalations from the mouth and head horribly fetid. Pulse 84. Comatose, but will answer in monosyllables when aroused. Will not take nourishment unless strongly urged. Calls for nothing. Surface and extremities incline to be cool. Discharge from the wound scanty, its exit being interfered with by the fungi. The friends and attendants are in hourly expectancy of his death, and have his coffin and clothes in readiness to remove his remains immediately to his native place in New Hampshire. One of the attendants implored me not to do anything more for him, as it would only prolong his sufferings — that if I would only keep away and let him alone, he would die. She said he appeared like 'water on the brain.' I said it is not water, but matter that is killing the man — so with a pair of curved scissors I cut off the fungi which were sprouting out from the top of the brain and filling the opening, and made free application of caustic to them. With a scalpel I laid open the integuments, between the opening and the roots of the nose, and immediately there were discharged

eight ounces of ill-conditioned pus, with blood, and excessively fetid. Tumefaction of left side of face increased. Globe of left eye very prominent."

In spite of this situation, the man recovered. We cannot forbear a quotation of the paragraph with which Dr. Harlow closes his report:

"I indulge the hope, that surely but *little* if anything was done to retard the progress of the case, or to interfere with the natural recuperative powers. Nature is certainly greater than art. Some one has wisely said that vain is learning without wit. So may we say, vain is art without nature. For what surgeon, the most skillful, with all the blandishments of his art, has the world ever known, who could presume to take one of his fellows who has had so formidable a missile hurled through his brain, with a crash, and bring him, without the aid of this *vis conservatrix*, so that, on the fifty-sixth day thereafter, he would have been walking in the streets again? I can only say, in conclusion, with good old Ambroise Paré, I dressed him, God healed him."

The modesty of this statement is commendable, and comports well with the attributes of its author, with whose passing at the age of eighty-seven the last person has died who was intimately associated with this now famous case.

THE BORDER LAND OF MEDICINE AND SURGERY.

IN his address as president of the Congress of American Physicians and Surgeons, recently held in Washington, Dr. R. H. Fitz discussed the border land of medicine and surgery. The address is published in full in another part of this issue, but the importance of the considerations which he takes up are so great that we beg to call further attention to the subject in this column.

It will be remembered that some years ago Dr. Fitz delivered the anniversary discourse before the New York Academy of Medicine on the subject, "Some Surgical Tendencies from a Medical Point of View." It will also be remembered that this paper excited a rather wide discussion, not unaccompanied with acrimony in certain quarters. The position which Dr. Fitz took at that time was one of conservatism in relation to surgical operations, particularly of a so-called palliative sort. He went, however, further than this, and on the basis of a large series of statistics from the Massachusetts General Hospital arrived at the conclusion that many operations were unnecessary, that some were positively harmful, and that the wise surgeon would do well to restrain his eagerness in the operative field. Opinions varied as to the complete justice of Dr. Fitz's conclusions, a not unexpected result of a somewhat radical statement of the existing situation.

It is, therefore, of more than passing interest that in his recent address at Washington, Dr. Fitz returns to the combat and reiterates, possibly in somewhat modified form, the statements made six years before. Like most border lands, that between medicine and surgery is and must always remain a somewhat disputed field. Physicians, so-called, will very naturally be inclined to assert their prerogatives in the treatment of cases which permit of both medical and surgical care. The surgeons, on the other hand, recognizing the dangers of delay, and anxious to demonstrate the efficiency of radical measures, are equally eager to take over into their domain many of the borderland cases. It is fitting, therefore, that a judicial statement should from time to time be made of the relationship existing between the physician and the surgeon in connection with various forms of disease. This Dr. Fitz has admirably done in this latest address. He discusses the history of medicine at considerable length, and notes the divergence of the medical and surgical points of view with the development of medicine on its scientific side. He then takes up in considerable detail the various organs and cavities of the body which have been gradually invaded by the surgeon in his effort to extirpate disease. We are not surprised to find that Dr. Fitz has not materially altered his attitude. He still begs the surgeon to progress slowly and cautiously, and draws attention to various situations in which operative success is not to be regarded as adequate therapy. Finally, he urges the necessity of greater accuracy in diagnosis, and insists that the surgeon has even greater obligations than those which arise from taking every possible means of making a correct diagnosis, and that the laboratory should not be neglected as an adjunct to the operating-room.

We imagine that no thoughtful physician will take serious issue with the general trend of Dr. Fitz's remarks as expressed in this address. The temptation toward over-radical operative interference is recognized by physicians and properly trained surgeons alike as a constant danger. The conservatism which comes from wide experience, tempered by much pathological knowledge, is a quality which the conscientious physician will do well to develop. Dr. Fitz unquestionably speaks with a certain medical bias, but it is altogether salutary that such an expression of opinion

should again be heard. Surely surgery will be benefited in the long run by such appeals coming from authoritative sources. We commend Dr. Fitz's address to the thoughtful attention of our readers.

SPIROCHETES AND CANCER.

In the Journal of April 25, 1907, under the title "Spirochetes in Mouse Cancer" there appeared an editorial in which the view was expressed that spirochetes might be found in inflammatory conditions in mice unassociated with tumor, and consequently under these circumstances their association with inoculated cancer in mice, as described by Gaylord and Calkins, would not be of great importance from the point of view of etiology. At the recent meeting in Washington, of the Association of Pathologists and Bacteriologists, Gaylord showed photographs of the spirochetes which he had found in mouse cancers, and in discussing his paper, Tyzzer demonstrated by means of lantern slides similar spirochetes which he had found both in mice unsuccessfully inoculated with tumors and also in some mice which had never received an inoculation. Ewing reported unsuccessful searches for spirochetes in human tumors.

As a result of this discussion it seems evident that the mere finding of spirochetes associated with tumors cannot be taken as evidence of any etiological association. The facts as known to-day are against the view that there is any close association between these parasites and cancer. It is possible that they may play a rôle in decreasing tissue resistance and in that way become a factor in tumor formation. However, this is highly speculative and it seems saner for the present to seek further for a cause of cancer, more specific in nature.

MEDICAL NOTES.

Dr. Weir Mitchell Defeats an Antivivisection Bill. — It is reported that the bill to prohibit vivisection in Pennsylvania has been dropped from the calendar in the legislature and that this action followed an address in opposition to the measure made to fifty members of the house by Dr. S. Weir Mitchell, of Philadelphia.

Genius and Hydrocephalus. — According to the *Medical Record* Professor von Hanseman, of the Berlin University, who has recently examined the brain of Theodor Mommsen, the historian, states that he, like Hermann von Helmholtz, the physiologist, and Adolph Menzel, the painter, was the subject of hydrocephalus. He suggests that on this basis an explanation may be offered of Mommsen's eccentricity, Menzel's extreme irritability and occasional fainting fits, and the spasmodic seizures from which Helmholz suffered.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, May 22, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 43, scarlatina 33, typhoid fever 8, measles 50, tuberculosis 35, smallpox 0.

The death-rate of the reported deaths for the week ending May 22, 1907, was 18.45.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, May 18, 1907, was 229, against 214 the corresponding week of last year, showing an increase of 15 deaths and making the death-rate for the week 19.83. Of this number 125 were males and 104 were females; 222 were white and 7 colored; 130 were born in the United States, 95 in foreign countries and 4 unknown; 38 were of American parentage, 165 of foreign parentage and 26 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 36 cases and 3 deaths; scarlatina, 26 cases and 0 deaths; typhoid fever, 3 cases and 2 deaths; measles, 36 cases and 1 death; tuberculosis, 44 cases and 26 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 23, whooping cough 1, heart disease 39, bronchitis 2 and marasmus 4. There were 15 deaths from violent causes. The number of children who died under one year was 37; the number under five years 51. The number of persons who died over sixty years of age was 56. The deaths in public institutions were 78.

There were 9 cases and 6 deaths reported from cerebrospinal meningitis during the week.

NEW YORK.

Passage of Medical Unification Bill. — The act known as the medical unification bill, recently passed by the legislature, which provides for a single examining board for all applicants for license to practise medicine, has now become a law, Governor Hughes having given the bill his signature on May 13.

Bequests. — By the will of the late James Henry Smith, of New York, $100,000 each is left to the New York Orthopedic and Dispensary and Hospital and to St. Luke's Hospital, in the latter of which institutions Mr. Smith was a member of the board of trustees.

Physical Welfare of School Children. — Under the auspices of the Board of Education's committee on the physical welfare of school children a conference was held at the New York Academy of Medicine on May 13, at which there were present representatives of the Board of Education, the Health Department, the hospitals and dispensaries, and various other charitable institutions and societies. Data submitted showed that of 683,000 children in the public schools, only 163,300 had thus far been examined for physical defects, and that of these, about two thirds were in need of medical or surgical treatment or of better nourishment. Of the pupils examined, all but 5,600, who were in Brooklyn schools, were from Manhattan, while no examination had yet been made of children in the boroughs of Queens, Richmond and the Bronx. The corps at present engaged in the work consists of 130 medical inspectors and 55 nurses who assist them, and the appropriation for their salaries, together with those of the special summer corps of the Health Department last season, was $250,250. After a full discussion of the matter, it was determined, as the sense of the conference, that the Board of Estimate should be asked to appropriate at once a sum sufficient to complete the examination of all the public school children in all the five boroughs before the end of the present fiscal year, and also to appropriate, in the budget for 1908, the sum of $500,000, which would provide one physician and one nurse to every three thousand pupils throughout the city.

Obituary.

JOHN M. HARLOW, M.D.

Dr. John M. Harlow died in Woburn, Mass., May 15, at the age of eighty-seven. Dr. Harlow was born in Whitehall, N. Y., Nov. 25, 1819, was fitted for college at schools in Vermont and Massachusetts, and began the study of medicine in 1840 at the Philadelphia School of Anatomy, and later at the Jefferson Medical College. From this latter institution he was graduated in 1844. The following year he began practice in Cavendish, Vt., remaining there for fifteen years. It was during his active professional life at this place that he came into intimate personal relation with the case of head injury which has since been known as the "Crowbar Case." This accident occurred on the 13th of September, 1848, through the premature discharge of a blast whereby an iron bar was driven through the head of the victim. Dr. Harlow had charge of the patient.

Leaving Cavendish, Dr. Harlow returned for a period to Philadelphia, somewhat broken in health, and thereafter, before again resuming practice in Woburn, Mass., in 1861, spent several years in travel and study. Dr. Harlow held many positions of trust, although not self-seeking in this regard. In 1885 and 1886 he was a member of the Massachusetts Senate, and in 1895 and 1896 served in the Governor's Council. He was also at one time a trustee of the Massachusetts General Hospital, appointed by Governor Wolcott. During his long life he was active both in professional and other pursuits, and through much ability and good judgment in financial affairs, amassed a handsome fortune. Although twice married, he died childless.

Current Literature.

Die Therapie der Gegenwart.

April, 1907.

1. *v. Behring, E. *The Crusade against Tuberculosis.*
2. *Magnus-Levy, A. *The Effect of Salt in the Diet.*
3. *Schnütgen. *Sarason's Oxygen Baths.*
4. Janowski, W. *Intercostal Neuralgia.* (Concluded.)

1. v. Behring's paper is chiefly a description of his efforts to immunize calves against tuberculosis and to cure incipient tuberculosis in cattle. As is well known, he regards the majority of cases of phthisis in adults as due to an infection through the intestine taking place in infancy and remaining latent until later life. The supply of milk free from tubercle bacilli is therefore of the greatest importance, and can only be accomplished by preventing tuberculosis in cattle. The prophylactic method or bovo-vaccination consists in the intravenous injection of dry tubercle bacilli on two occasions three months apart, the first being made when the calf is two to four weeks old. This method has already yielded gratifying results and is to have a thorough trial by the Argentine Republic. In tulaselactin v. Behring has found a preparation that has very active curative properties. It is obtained by treating the tuberculous virus with chloral. The paper does not describe the details of the methods employed nor does it give any figures as to the results obtained.

2. Magnus-Levy reviews the subject of the action of salt in the diet in producing edema in diseases of the kidney. He describes the classical experiments of Widal and Javal, who caused edema to appear and disappear at will simply by increasing or removing the salt from the diet. It is possible, however, to have a retention of salt in the body without edema, the salt being taken up by the cells instead of remaining in the lymph spaces. The edema of cardiac disease is not due primarily to salt retention, but to mechanical causes, and therefore the reduction of salt cannot have such a marked effect as in nephritis. Indirectly, however, it may be advantageous by reducing the thirst and consequently the ingestion of water and the work of the heart. The effect of the exclusive milk diet in the reduction of edema is due probably to its small salt content, 3 liters of milk containing 5 gm. sodium chloride. A mixed diet prepared without the use of salt contains even less, approximately 2 gm. After the edema has gone it is best to continue a moderate restriction of salt, allowing about 8 gm. per day. With regard to the use of salt by the healthy, a moderate amount is probably beneficial, although many vegetarians remain healthy on a salt-free diet. Excessive amounts of salt have never been known to act injuriously on a healthy person.

3. Schnütgen praises the action of Sarason's oxygen baths. The oxygen is generated by a mixture of sodium perborate and borate of manganese. The effects are somewhat similar to those of carbon dioxide baths, but not identical. The patients in all cases felt refreshed and invigorated after the bath, and very sleepy. The pulse rate was usually considerably reduced; the blood pressure was sometimes raised, more often lowered. Schnütgen recommends these baths especially for neurasthenia and allied conditions, and also for heart disease. [W. T.]

ZEITSCHRIFT FÜR KLINISCHE MEDIZIN.

BD. 61, HEFT 3 AND 4.

1. *THOST, A. *The Management of Cases of Severe Laryngeal Tuberculosis.*
2. *SCHIFF, A. *The Mechanical Stimulation of Gastric Secretion.*
3. FEIN, J. *Casuistics of Scleroma with Observations on Its Importance in the Army.*
4. LAUDESBERG, R. *Paralysis of the Recurrent Nerve on a Functional Basis.*
5. *SORGO, J. *Mixed Infection in Pulmonary Tuberculosis and the Etiological Relation of It and of Intestinal Tuberculosis to Amyloid Degeneration.*
6. *CATTI, G. *Venous Sounds in Interstitial Hepatitis.*
7. HERSCHFELD, H. *The Application of "Complement-Ablenkung" to the Diagnosis of Typhoid.*
8. *TALTA, W., and GIGON, A. *Sugar Secretion in Diabetes Mellitus.*
9. *v. LEYDEN, E., and BERGELL, P. *The Therapeutic Use of Trypsin in Carcinoma.*
10. SCHÜTZE, A., and BERGELL, P. *A Contribution to the Knowledge of Antiferments.*
11. *OHM, J. *Clinical Observations on Patent Foramen Ovale and Its Diagnostic Importance. A Contribution to the Casuistics of So-Called Paradoxical Embolism.*

1. This is a rather discursive paper on the treatment of severe laryngeal tuberculosis. Thost doubts the occurrence of a primary tuberculosis of the larynx. He believes there is considerable variation in form of the disease in different parts of the country, the worst cases being found where there is a dry, dusty climate. Diagnosis is usually easy. Ulcerative conditions without glandular enlargement of the neck are almost always tuberculous. Many cases can be cured with a fair degree of ease. Thost, however, concerns himself here more with severe uncurable cases where palliation is the chief end. A dust-free climate is very important. Insufflation of powdered morphine or morphine applied in some other form to the larynx is very useful in combating the pain. Applications of lactic acid he finds one of the best means of treating the pain of deglutition and he gives special directions for the method of its application. Tuberculin is to be used and forced feeding by nasal tube if necessary. Tracheotomy he does not believe in, but excision of the larynx he thinks in the future will be recommended for many cases. The paper contains a number of other hints useful in handling these severe cases.

2. Pawlow in his studies of gastric secretion has shown the importance of psychic stimuli and the action of chemical stimuli. He does not believe that the presence of food in the stomach mechanically acts as a stimulus to gastric secretion. By using dogs with Pawlow gastric fistulæ Schiff has studied the action of bismuth subnitrate given to the animals with milk. He finds that the animals who get the bismuth with their milk secrete almost twice as much gastric juice as those receiving milk alone. Sand has the same action. Schiff's experiments seem to have been carefully controlled and go to show that mechanical stimuli play a part in gastric secretion.

5. Sorgo, after carefully washing particles of tuberculous sputum, studied its bacterial content by cultural methods. In 26 of 30 cases examined he obtained a pure culture of bacillus tuberculosis; in the other 4 there were also cocci. Of 19 cases which later died and were autopsied he found tubercle bacilli in pure culture in the sputum during life in 13 cases; in the other 6 there was a mixed infection. Of 16 fatal cases of chronic phthisis, eleven yielded pure culture of B. tuberculosis from various foci of disease in the lungs. As a result of this work, Sorgo concludes that all the clinical symptoms including intermittent fever and the pathologico-anatomical processes (especially pneumonic changes and cavity formation) can result from the action of tubercle bacilli unassociated with other organisms. Sorgo in his cases found also a parallelism between the occurrence of tubercular intestinal lesions and amyloid changes in the viscera. In the case in which amyloid was present without intestinal lesions there was a mixed infection of the lungs. So Sorgo believes that amyloid is due to toxins absorbed through intestinal ulcers or formed by pyogenic organisms present as a mixed infection.

6. In cases of cirrhosis of the liver, according to Catti, venous murmurs audible in the region of the spleen are relatively common (one sixth to one fifth of the cases), but venous murmurs elsewhere, as in the epigastrium or about the umbilicus, are very uncommon. Catti gives a case in which there was a marked thrill and murmur most intense to the left of the umbilicus and which disappeared on compression of the left inferior epigastric vein below the point of greatest intensity. In another case there was a murmur but no thrill just below the ensiform cartilage. Catti explains these murmurs as the result of the opening of a smaller vein into a larger when the pressure is lower in the latter. In other words, they are murmurs of stenosis. They are only produced when there is a portal venous obstruction.

8. This is a long paper of sixty-two pages containing numerous tables of analyses of the carbohydrate and nitrogenous metabolism in 8 cases of diabetes. The authors have tested the effect on the metabolism in these cases of giving certain proteids and carbohydrates in addition to an established diet under which the metabolism had been studied for some time. They then could note the change produced by a definite amount of the added substance. They find that in the milder cases different proteids influence the glycosuria in different ways, while in the severe cases there is very little difference; and a given amount of proteid in a given case causes the same increase in glycosuria irrespective of the kind of proteid ingested. In milder cases proteids influence glycosuria in the following order: casein, serum albumin, coagulated egg albumin and serum globulin, the last having least effect. For carbohydrates in many cases, with the exception of maltose, there is little difference in their action (dextrose, galactose, levulose, oatmeal and wheat flour) if the urine for the entire succeeding twenty-four hours is analyzed. Maltose is assimilated very much more poorly than any of the others. In some cases levulose is borne better than dextrose and in general individual cases may show individual differences. This latter is especially likely to be true for the milder cases.

9. v. Leyden and Bergell point out that studies on the metabolism of malignant tumors may yield some knowledge of specific processes which may in turn be influenced in an inhibitory way. It is possible that they utilize specific proteids in their growth and so differ from simple benign tumors and in their destruction special enzymes may be active. Pancreatin in vitro has more action on them than does pepsin, and it has been demonstrated that its tryptic ferment after introduction into the body may appear in the urine, which is evidence for its presence in the circulating blood. Under these circumstances it is to be expected that pancreatin given per os or intravenously would reach the tumor and have some effect. They have tried it on some cases, but are not enthusiastic about the result. Still they have a hopeful attitude of mind toward it and believe it may eventually be of therapeutic use. Experiment along these biological lines they think may possibly lead to some better understanding of malignant tumors and should be undertaken.

11. Ohm reports a case of open foramen ovale with paradoxical embolism (embolism from venous system to arterial through the open foramen ovale). Diagnosis of the cardiac lesion during life is difficult. Localization of a murmur sometimes presystolic, sometimes systolic, at the base near the left sternal margin with enlargement of both ventricles and cyanosis suggests the diagnosis. A positive centrifugal venous pulse in the neck without evidence of tricuspid insufficiency is confirmatory. When associated with pulmonary stenosis, the condition cannot be diagnosed, since the symptoms of the stenosis overshadow those of the open foramen ovale. [H. A. C.]

REVUE DE CHIRURGIE.

MARCH, 1907.

1. *TAFFIER, T., JARDRY and GY—. *Pleural Calcification.*
2. GUIBÉ. *Volvulus of the Small Intestine and of the First Portion of the Large Intestine.* (Continued.)
3. BAUMGARTNER, A., and HUGUIER, A. *Dislocations below the Astragalus.* (Continued.)
4. *MERCADÉ, S., and LEMAIRE, H. *Pathogenesis of Traumatic Serous Effusions.*
5. *DELAGE, J. *The Slow Development of Strangulated Herniæ from Lateral Pinching of the Intestine.*
6. CAUBET, H. *The Structure of Callus.*

7. DAMBRIN, C. *Study of Dislocations of the Semi-Lunar Cartilages of the Knee.* (Continued.)
8. *LENORMANT, C. *Colopexy; a Contribution to the Treatment of Prolapse of the Rectum.*
9. BRÉCHOT, A. *Pylorectomy in Benign Stenoses of the Pylorus.*

1. Calcification of the pleura exists occasionally as the third stage in the process of repair of a chronic pleurisy. The first stage is that of organization of the fibrin into a fibrous layer which has relatively few blood vessels. The process usually stops here, but under certain conditions which are not yet clear this fibrous tissue becomes still further devitalized. Its blood vessels disappear completely and the tissue resembles very closely hyaline cartilage. This is the second stage in the process. Finally in this hyaline tissue salts of lime are irregularly deposited. Macroscopically layers of lime are found varying in extent from several small areas to a thick chalky membrane surrounding the whole lung. Their consistency is like that of bone and crepitation is easily elicited. From the cases described in the literature the most common location fo such plagues is on the diaphragmatic pleura. This layer of chalky deposit may be adherent to the lung, or to the inner surface of the chest wall, or, on the other hand, may exist as a separate lamella only slightly attached to either. This tissue examined under the microscope never shows any evidence of true bone formation. The condition rarely is made out during life except on the occasion of an aspiration or operative exploration. It causes no symptoms *per se* and the signs are usually only those of a chronic pleurisy with thickened pleura. Calcification of such a sort causes no alteration in the prognosis unless the thorax be opened, in which case the chronic suppuration due to the process of sequestration makes the outlook more grave because of the danger of amyloid disease. The authors were able to find but three cases in which the diagnosis had been made during life. Of these two died following operation, the third has a persistent sinus. Operation is rarely justifiable.

4. From a study of the cellular elements of traumatic serous effusions the authors conclude that the fluid is of purely lymphatic origin and that rupture of blood vessels and inflammation play only a secondary and relatively unimportant rôle in its formation.

5. Delage calls attention to the class of hernias which are due to a lateral pinching of the gut insufficient to cause occlusion of the lumen. He has collected nine such cases in which the symptoms were very slight or even absent. That such cases exist is important, for it is an accepted fact that strangulation of a portion of the circumference of the gut causes a much more rapidly progressing gangrene than in those instances where a whole loop is involved. Several cases have gone on to gangrene and the formation of a stercoral abscess in the hernial sac without any very urgent symptoms of trouble. This exceptional tolerance of the intestine may be due to the fact that there is usually found between the constricting ring of the sac and the knuckle of gut one of the fat appendages. Where no hernia has been noted, and a small acutely tender lump is found in the groin, one must differentiate carefully between such a condition as above described and a slowly suppurating bubo, a hernia of the appendix and a nodule of actinomycosis. When a mass has been noted before, one must consider an undescended testicle which has become inflamed, or a large ampulla-like dilatation of the saphenous vein as well as any of the abdominal structures which may be found in a hernial sac, such as Meckel's diverticulum or the appendix. The treatment of the condition should always be by operative reduction.

8. Lenormant has collected the statistics of the end results of prolapse of the rectum treated by resection, by rectopexy and by colopexy. Though in all cases the surgeon will adapt his operation to the conditions found, the operation of intra-abdominal fixation of the colon to the iliac fossa, after reduction of the prolapse (colopexy), has been found to be the operation offering the widest range of applicability and most uniformly successful results. The mortality of such an operation is *nil*. In those few cases where the proctitis is unusually severe, after fixation of the gut an artificial anus is made (colopexotomy), through which local treatment may be applied. The sutures should be either of linen tlread or silk, and should extend through the muscularis of the colon itself, not attempting to rely on mesenteric fixation. The surface included should extend over about 8 cm. of the gut in an oval form, fixing it to a corresponding surface which has been previously deprived of its serous membrane. It should always be remembered that the conditions causing a rectal prolapse are identical with those causing a uterine prolapse, and depend on insufficiency of the levator ani and those other muscles making up the pelvic diaphragm. Therefore the operation of colopexy should always be supplemented by a perineorrhaphy, either anterior, posterior or both combined. [W. C. Q.]

Gastroscopy. JACKSON (*Med. Rec.*, April 6, 1907) has devised an instrument by which he believes that gastroscopy will soon become a common diagnostic procedure. The instrument is a rigid straight tube with an electric light bulb which is passed into the stomach under general anesthesia. The area most readily seen is the middle third of the stomach. In certain cases by the aid of external manipulation the pylorus can be brought into view. Fourteen cases have been studied; among these the diagnoses of malignant disease was made five times (confirmed in 2 by specimens removed) and the diagnosis of peptic ulcer 5 times. In other cases observations of diagnostic value were made, and in one case a foreign body was removed from the stomach. The author is a laryngologist, but believes that gastroscopy can be learned by any physician. [F. W. P.]

Treatment of Acute Cardiac Affections in Children. BAGINSKY (*Med. Rec.*, April 13, 1907) reports observations illustrated by two cases of acute articular rheumatism with cardiac complications. In both cases acetylsalicylic acid was efficient in controlling the arthritis, but had no effect upon the endo- and pericarditis. Ichthyol ointment, ice bags and digitalis also had no effect. In both cases, however, rapid improvement followed the use of mercurial inunctions and potassium iodide. Venesection may give temporary relief, but is unsafe. Puncture of the pericardium is to be employed when symptoms are urgent; if a pleural effusion is also present, the pleura should be aspirated first, and this may obviate the necessity of puncturing the pericardium. Blistering is not advised. If renal irritation exists it is to be treated by accepted dietetic measures. [F. W. P].

Diagnosis of Early Pregnancy with Reference to a Particular Sign. SADINSKI (*Med. Rec.*, April 13, 1907) describes a new sign of pregnancy, which he has found to be highly reliable and always perceptible, when the uterus is in normal position, as early as the sixth week. Sometimes as early as the fifth week and always in the sixth week of pregnancy an area of elastic fluctuation the size of the tip of one's finger can be made out in the anterior wall of the body of the uterus in the median line. As pregnancy advances this area of cystic fluctuation grows proportionately larger until, by the third or fourth month, it occupies nearly the whole of the anterior aspect of the body of the uterus. Two conditions only may cause confusion. Similar areas of softening may be felt in incomplete abortion or subinvolution, but are to be distinguished by their soft, doughy, non-elastic consistency. The only condition which can exactly simulate the sign described is a soft myoma of the anterior wall of the uterus in the median line. In extra-uterine pregnancy this sign is not present and its absence is of value in ruling out uterine pregnancy. [F. W. P.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. MAY 4, 1907.

1. *EDSALL, D. L. *Observations Relating to the Nature of Atrophy of Intestinal Origin.*
2. *FREUND, H. A. *Hemolysis in Pernicious Anemia Augmented by Urinary Retention.*
3. ALLISON, C. C. *The Field Wherein the Work of the Surgeon Approaches that of the Physician.*
4. MOTTER, M. G. *The State Board and the College Diploma.*

5. *Weiss, L. *Contribution to the Study of Erythema Induratum.*
6. *Crossen, H. S. *The Preferable Method of Anterior Fixation of the Uterus When the Abdomen is Open.*
7. Cullen, T. G. *A Series of Interesting Gynecologic and Obstetric Cases.*
8. *Knott, Van B. *Treatment of Traumatic Gangrene.*
9. *Reik, H. O. *Is Eyestrain Ever an Etiologic Factor in Epilepsy?*

1. Edsall's article describes an hypothesis which, if it can be established, will shed much light upon the pathogenesis of infantile atrophy. Hitherto no satisfactory theories as to the cause of infantile atrophy have been evolved. The absorption in cases of this condition is not sufficiently impaired to explain the wasting. Supposed organic changes in the intestinal wall have been disproved. The absence of ferments and presence of toxins in cow's milk, suggested upon theoretical grounds, are supported by very little evidence. In reviewing recent advances made in the physiology of digestion and absorption two facts are emphasized. The first is that the breakdown of protein in digestion is much more complete than was formerly supposed, much of the protein, perhaps nearly all, being carried beyond the peptone stage to the component amino-acids. The second is the existence of a proteolytic ferment (erepsin) in the intestinal mucous membrane which may with some likelihood have a reversible action and serve as an agent in the *reconstructive* process which is known to occur as the products of proteid digestion pass through the intestinal wall toward the circulation. Edsall's hypothesis is that in atrophic infants the fragmentation of proteins is not sufficiently complete and that the reconstructive process is also deficient, so that when the foreign proteins of cow's milk are ingested they remain foreign proteins even after absorption, since the process of fragmentation and synthesis has not been complete enough to convert them into the natural proteins of the human body. Foreign albumoses and peptones, it is known, can be absorbed and can be utilized to produce energy, but there is no evidence that they can be used in building new tissue. This may be a reason why infants that have not done well on cow's milk mixtures improve when fed even in part upon human milk, which does not need to undergo the homologizing process. This theory may well explain why, in spite of a fair amount of absorption, atrophy of tissues occurs. To determine the presence or absence of erepsin Edsall tested the intestinal mucous membrane of three fatal cases of uncomplicated infantile atrophy, of two cases of atrophy in adults for which at autopsy no cause could be found, and of three cases of atrophy from known causes. In the first two classes of cases no evidence of a proteolytic ferment could be found, while in the last three cases, taken for control, a marked proteolytic action was present in all.

2. Freund reports a case of pernicious anemia with urinary retention from enlarged prostate in which the periods of retention coincided with the exacerbations of the anemia. Cunningham has reported a similar case. From these cases the question naturally arises whether it is not the retention of hemolysins which should be excreted in the urine which causes these exacerbations. Morris, McCaskey and others have demonstrated hemolytic substances in the urine of cases of pernicious anemia, a fact which renders this theory plausible and makes its further investigation highly desirable.

5. Weiss discusses the disease erythema induratum of Bazin, a condition which has generally been regarded as a cutaneous tuberculide, since more than half of the reported cases have been in tuberculous patients, and in a few instances tubercle bacilli have been found in the lesions. The disease is characterized clinically by the appearance of hard deep-seated nodules, at first recognized only by touch, but later showing a purplish or violaceous hue as they work toward the surface. The lesions occur mainly on the legs; the condition occurs almost exclusively in young women. Many cases are undoubtedly taken for erythema nodosum, to which the disease is probably closely allied. The main difference is the more chronic sluggish course of the erythema induratum, with absence of pain and systemic disturbances. Weiss reports a case with microscopic examinations of a lesion. The sections showed giant and epithelioid cells in collections resembling tubercles. Tubercle bacilli, however, were not found, and inoculations of guinea pigs proved negative.

6. Crossen describes the courses of procedure which he advocates to remedy retrodisplacements of the uterus under different accompanying circumstances discovered when the abdomen is open. The point most strongly emphasized is the advantage of anterior fixation by suturing the stronger portions of the round ligaments to the anterior abdominal wall considerably internal to the inguinal ring, so as to secure a forward rather than a lateral traction. This operation can be performed whenever the ligaments and adjacent tissues are freely movable; the steps of the operation are given in detail. When the round ligaments are fixed in inflammatory infiltration it is necessary to fasten them to a point further out toward the inguinal ring than in uncomplicated retroversions. Restoration of normal position of the uterus when the cervix is too far forward requires repair of tears of the perineum and shortening of the sacro-uterine ligaments in addition to measures to keep the fundus forward. In certain cases with extensive chronic inflammation it is impossible to bring the uterus as far forward as its normal position. In such cases if the uterus is fastened in a position midway between the normal position and a retrodisplacement, and the intestines and omentum are placed behind it, symptoms will practically never recur.

8. Knott calls attention to the high mortality of traumatic gangrene, stated by Cheyne and Burghard as 95%. He advocates rapid circular amputation with ligation of vessels but without attempt to close the wound, which is simply covered with a dressing of gauze saturated with salt solution. After seven to ten days or later the amputation is completed by whatever method seems best. This procedure has been followed in 9 cases with but one death.

9. Reik writes in refutation of certain authors who have denied the influence of eyestrain as a factor in the etiology of epilepsy. Epilepsy is undoubtedly the combined result of predisposing causes in temperament and heredity and of immediate causes of great variety, ranging from dentition to disorders of menstruation. Statistics of institutions indicate that not more than 1% of the cases are ever cured; thus no measure which may ever give relief and no cause which can be removed should be overlooked. The importance of eyestrain in epilepsy has been recognized by such observers as Theobald, Standish and Reber. Reik reports 6 cases in which correction of ocular defects was followed by striking relief of the epilepsy. [F. W. P.]

The Lancet.

April 27, 1907.

1. Glover, J. G. *The Outlook of the Medical Profession: Scientific, Social, Financial.*
2. *Jamieson, J. K., and Dobson, J. F. *The Lymphatic System of the Cecum and Appendix.*
3. *Thomas, J. L. *A Series of Cases of Goiters Removed under Cocaine Anesthesia.*
4. *Bone, B. M. *Seven Cases of General Peritonitis Treated by Operation, with Five Recoveries.*
5. Heath, C. J. *The Treatment of Chronic Suppuration of the Middle Ear without the Removal of the Drum, Membrane and Ossicles.*
6. Snowman, J. *Recent Developments in the Therapeutical Applications of Arsenic.*
7. Kraus, O. *The Balneological Treatment of Urinary Diseases.* (Continued article.)
8. Haw, W. H. *Two Cases of Snake-Bite with a Suggestion for Treatment.*
9. Reid, J. *A Case of Poisoning by Coal-Gas.*
10. Nobbs, A. *A Case of Desquamative Erythema.*

2. Jamieson and Dobson present a careful anatomical study of the ileo-colic group of glands which drain the cecum and appendix. Although in acute and chronic suppurative conditions of this region a knowledge of these glands is of importance, it is in malignant disease of the appendix and cecum that this knowledge is essential. They believe that too much attention is paid to mechanical technique and not enough to anatomical details. It seems to be an accepted doctrine that glandular infection does not take place in the early stages of malignant disease

of the intestine; they think this a mistake and advise a careful investigation of all the glands, the exact position of which they describe. In most cases of malignant disease of the appendix alone such extensive operation is not often necessary.

3. Thomas reports 55 cases of goiter removed under cocaine anesthesia and 1 removed with no anesthesia, with *no mortality*. He uses the Kocher collar incision and the so-called Kocher position. One per cent cocaine is employed. He describes in detail the technique of his operation.

4. Bone reports 7 cases of general peritonitis with 5 recoveries. The points he emphasizes are: (1) the necessity of removing the cause; (2) removal of pus with dry sterile gauze swabs, (3) free drainage with tube and gauze wicks, the least possible manipulation of intestines and the counteracting shock by all means possible. [J. B. H.]

British Medical Journal.

April 27, 1907.

1. *Shaw, H. B. *Clinical Remarks on the Value of Blood Examination.*
2. Finny, J. M. *Remarks on Manacal Chorea.*
3. *Wilson, T. S. *On the Value of an Abnormal Rise in the Average Level of the Diaphragm as a Guide to the Volume of the Blood in Active Circulation.*
4. Thompson, H. E. S. *The Possibility of Actinomycotic Infection of the Vagina.*
5. *Watson, C. *A Plea for the Use of Oatmeal in the Dietary of Children.*
6. Ewart, W. *On the Present Position of the Treatment of Tuberculosis by Marine Climates.*
7. *Orr, O., and Rows, R. G. *Lesions of Spinal and Cranial Nerves Produced by Toxins.*
8. *Kilvington, B. *An Investigation of the Regeneration of Nerves with Regard to Surgical Treatment of Certain Paralyses.*

1. Shaw discusses the value of routine blood examination for the general practitioner, its scope and limitations. He believes that most of the special post-graduate courses on the blood and books on this subject present far too many detailed procedures of difficult technique to be of value to the average practising physician. He discusses the value of leucocytosis as significant of a suppurative focus and as to the value of routine examinations in every case. The work of Lorrane and Smith as to the total amount of blood and hemoglobin in health and disease he believes to be of the greatest value, especially as explaining certain moot points in the essential anemias. He speaks briefly of cryoscopy and more at length on opsonins, urging that hospitals provide laboratories where this work can be done by experts in that line.

3. Wilson presents evidence in support of the two following propositions: (1) That when for any reason the total amount of blood is diminished, the total bulk of the intrathoracic viscera is correspondingly diminished by the relative emptiness of the thoracic vessels and that this results in an elevation of the diaphragm, which has to take place to adjust the cubic content of the thorax to the altered volume of its contained viscera; (2) and that such a rise can be detected clinically and when present is important as a guide to diagnosis and treatment. The level of the diaphragm is best obtained on the left side by means of stomach tympany. He discusses cases and presents diagrams of cases in which such a use had occurred, such as in limitation of food, toxic typhoid, hemorrhage, neurasthenia and heart disease where the cardiac weakness is one of the muscle. He presents at length his theory in explanation of this phenomenon.

5. Watson fed rats on an oatmeal diet and found a great increase in activity of the thyroid gland. For this reason and others he believes oatmeal should be more used than it is as an article of diet for children.

7. Orr and Rows, working for the Science Committee of the British Medical Association, report briefly the progress of their experiments in introducing bacteria and bacterial toxins into the peripheral nerves and then studying what lesions resulted in the cord or brain. They conclude: (1) Toxins readily travel up spinal and cranial nerves to the central nervous system; (2) these nerves in their intramedullary part where they have lost their neurolemma immediately undergo degeneration; (3) the first change is a primary degeneration of the myelin; axis cylinders and nerve cells are evidently affected later.

8. Kilvington, of the British Medical Association Science Committee, has experimented on dogs to see whether or not spinal nerves can be successfully transplanted, especially with a view of determining if the nerves supplying the pelvis, bladder and rectum can be done away with and their place taken by other motor nerves higher up, supplying the hind legs, etc. Their operations on dogs were quite successful. They made dissections on cadavers and elaborated a technique which they believe can render very great service in cases of fracture dislocation of the spine where the greatest cause of misery is incontinence of rectum and bladder, with death due to infection of the kidneys. They operated on one case but were not successful because they did it in two stages, and during the interval new scar tissue altered conditions so that transplantations could not be done. The operation will be advisable only in rare cases, but in a few such may do great good. [J. B. H.]

Miscellany.

EXPERT TESTIMONY IN INSANITY.

Before the Society of Medical Jurisprudence, on May 13, Dr. William Hirsch, professor in Cornell University and an eminent alienist, made an address on expert testimony and insanity, which devoted considerable attention to the recent Thaw trial (although the name of the defendant was not mentioned), in which he himself was one of the experts retained by the prosecution. In the course of it he said: "If a man deliberately kills another, and then tells why he did the killing afterward, I cannot see why any one should say that the slayer did not know the nature and quality of the act performed. Yet we have the spectacle, the phenomenon, of two sets of alienists disagreeing. In European countries experts are never retained. They are appointed by the court. In this country I have heard lawyers hold that their experts should always look out for the interests of their clients. This would make them disregard the truth, and no expert should serve with any such understanding. There are two ways of helping out the man on trial. One way is to substitute another form of insanity for that which really exists. It might be such a form as one might call a 'hurricane of the brain.' . . . When the Raines law was first enforced, saloon keepers would sell beer in tea-cups and call it cold tea. The moral is just the same as applied to expert testimony when given in this way. The expert who goes about his work in this manner is not as good as the saloon keeper, for he is supposed to be a man of higher intelligence. Some alienists will also take the view that no insane person should be punished for crime because no insane person ever knows the nature and quality of his act. They will testify that a crazy man eating a beef steak has an 'insane knowledge' of the steak, the knife and fork, etc. It seems hardly possible that this sort of thing should be permitted in a civilized community. There should be in this country, as in European countries, a partial responsibility recognized, and separate courts for the trial of the insane. There are more para-

noiacs out of the insane asylums and prisons than in them. They are subject to punishment that will tend to deter them from crime. In insane asylums there is a system of punishment and reward, and the paranoiac who knows that he will be deprived of certain comforts if he does a certain act will avoid doing it. . . . An honest district attorney like the one we have will not go out after a man's life when he is in such a plight, but will appeal under the law which says that no man who is incapable of understanding the risk he is running should be put on trial for his life. Paranoiacs who deliberately shoot down people he believes are his enemies are not to be let free on the community." Dr. Hirsch went on to say that when patients suffering from psychical epilepsy committed crimes during attacks, they were invariably overwhelmed with horror when, on recovering their consciousness and reason, they were informed of the acts they had committed, instead of boasting of their crime and setting themselves up as heroes or modern knights. In illustration, he referred to the case of a certain prince whom he attended when practising in Germany. This patient had two lapses. In one he causelessly shot a number of persons from his window, and in the other, during a battle, he turned his cavalry squadron against an infantry formation of his own army, and tried to make them charge. Yet in both instances he knew absolutely nothing of his acts until afterward, when his mind resumed its balance.

DEATHS UNDER CHRISTIAN SCIENCE TREATMENT.

On May 14 a coroner's jury, investigating the death of Mrs. Corinne McBride, a Christian Scientist, who " passed away " without medical attendance, rendered a verdict to the effect that the deceased came to her death by acute lobar pneumonia (as shown by autopsy), and that death might not have taken place if proper medical attendance had been furnished. The verdict then proceeds to censure the husband of the deceased for failure to provide such medical attendance, when this was demanded by the patient's sister, and also censures two Christian Science healers who attended the deceased, for a similar failure. Of course , such censure amounts to nothing, as there was no violation, by those censured, of the existing statutes; but the concluding portion of the verdict was very significant and timely, calling public attention to an abuse in urgent need of correction. It was as follows: " And we find that a number of medical doctors in New York City make it a practice to furnish death certificates for persons who die under so-called Christian Science treatment, thus enabling Christian Science practitioners to evade the laws of the state of New York in their so-called treatment. And we respectfully call the attention of the Health Department of New York City, the District Attorney of New York County, and the Medical Society of New York County to the practice of such physicians, and request them to take all necessary steps required by law to put a stop to such practices and to punish the perpetrators thereof." It is only proper to say that this very commendable action was due largely to the very decided stand taken in the matter by Coroner Acritelli, who, in his address to the jury, denounced in scathing terms those licensed medical practitioners who, for the sake of a little money, disgrace the profession by making out death certificates for persons whom they never attended during life. For the manner in which these unworthy members of an honorable profession were called to account, both the coroner and the jurymen are entitled to the gratitude of the community. The McBride case would undoubtedly have passed, like the vast majority of deaths among the Christian Scientists, without attracting attention, but for the fact that the husband of the deceased had his wife's sister arrested " for disorderly conduct " because she vehemently protested against his refusal to call in medical advice.

The past week has been a bad week for the Christian Scientists, for on May 17 another coroner's jury, investigating the case of a child, six years old, who was allowed to die from bronchopneumonia, without other attendance than that of a Christian Science healer, brought in a verdict censuring the father of the child (whose arrest has since been ordered) for criminal negligence. The verdict furthermore makes the recommendation to the state legislature that failure to provide medical attendance for a minor when ill be changed from a misdemeanor to a felony and be prosecuted as homicide. At present the maximum punishment for this offence, as provided in the Penal Code, is imprisonment for a year, $500 fine, or both.

Correspondence.

MORPHINE IN TUBERCULOSIS.

Ann Arbor, Mich., May 17, 1907.

Mr. Editor: I take this method of trying to correct the outrageously false impression given by many of the newspapers of the country to the statement of Dr. Knopf before the Clinical and Climatological Section of the National Association for the Study and Prevention of Tuberculosis, at its recent meeting in Washington. I was present as chairman of the section when Dr. Knopf made his remarks. He was within a few steps of where I sat, and I was paying close attention to his remarks. I understood him, and all others with whom I have spoken on the matter since the meeting understood him, to state plainly the need of using morphine to relieve painful symptoms in the last stage of the disease. Any physician who heard the remarks must have known that the morphine was used not for shortening life, but solely for making it easier, and every physician also knows that life is generally prolonged by that sort of treatment. As I have expressed myself before this regarding the shortening of lives of seriously sick people, I need hardly say that had Dr. Knopf advocated anything like the administration of large or dangerous doses of morphine, I would have vigorously protested. I hope that physicians who are asked about the matter will contradict the newspaper statements, and seize the opportunity of explaining the real object of the treatment.

Very truly yours,

George Dock, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 11, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,558	449	Quincy	3	—
Chicago	—	—	Waltham	4	—
Philadelphia	—	—	Pittsfield	12	—
St. Louis	—	—	Gloucester	12	2
Baltimore	185	43	Brookline	4	1
Cleveland	—	—	North Adams	6	2
Buffalo	—	—	Chicopee	9	4
Pittsburg	—	—	Northampton	4	3
Cincinnati	—	—	Medford	4	1
Milwaukee	—	—	Beverly	3	—
Washington	—	—	Leominster	1	—
Providence	64	20	Hyde Park	2	—
Boston	242	51	Melrose	5	2
Worcester	47	13	Newburyport	—	—
Fall River	35	18	Woburn	4	1
Cambridge	28	8	Marlboro	5	0
Lowell	43	17	Westfield	11	1
Lynn	22	5	Peabody	—	—
New Bedford	28	9	Revere	—	—
Springfield	21	8	Attleboro	3	2
Lawrence	21	7	Clinton	1	0
Somerville	11	2	Adams	3	3
Holyoke	17	7	Gardner	—	—
Brockton	13	0	Milford	—	—
Malden	8	3	Watertown	2	0
Chelsea	14	3	Plymouth	—	—
Salem	8	1	Weymouth	3	0
Newton	9	—	Framingham	1	—
Haverhill	9	1	Southbridge	5	3
Fitchburg	5	1	Wakefield	—	—
Everett	9	2	Webster	—	—
Taunton	9	2			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 18, 1907.

R. I. LONGABAUGH, assistant surgeon. Ordered to Naval Hospital, Annapolis, Md.

T. H. RICHARDS, surgeon. Detached from the Naval Hospital, Norfolk, Va., May 19, and ordered to the "Kansas."

K. OHNESORG, passed assistant surgeon. Detached from the "Mayflower" and ordered to Navy Yard, Boston, Mass.

P. S. ROSSITER, passed assistant surgeon. Detached from the Naval Academy and ordered to the "Nevada."

C. M. OMAN, passed assistant surgeon. Detached from the "Ohio" and ordered to the "Arkansas."

C. H. DELANCY, passed assistant surgeon. Detached from the Navy Yard, Washington, D. C., and ordered to the "Florida."

J. R. DYKES, passed assistant surgeon. Detached from the Naval Station, New Orleans, La., and ordered to the "Mayflower."

M. A. STUART, assistant surgeon. Ordered to the Naval Hospital, Norfolk, Va.

J. T. DUHIGG, assistant surgeon. Detached from the Naval Hospital, New York, N. Y., and ordered to the "Severn."

A. MCK. JONES, acting assistant surgeon. Detached from duty with Naval Recruiting Party No. 4, June 1, and ordered to duty at Naval Recruiting Station, Chattanooga, Tenn., June 3.

S. BACON, acting assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Station, New Orleans, La.

APPOINTMENTS.

DR. HENRY A. CHRISTIAN has been appointed physician-in-chief of the Carney Hospital, South Boston.

DR. T. F. LEEN has been appointed physician at the same institution.

DR. E. G. BRACKETT has been appointed surgeon to the orthopedic department of the Massachusetts General Hospital.

SOCIETY NOTICES.

THE MEDICAL MILK COMMISSIONS IN THE UNITED STATES. — The organizations will hold a conference at St. Charles Hotel, Atlantic City, N. J., on Monday, June 3, 1907. There will be three sessions: 10 o'clock A.M., 3 o'clock P.M., and 8 o'clock P.M. The main objects of the conference are to determine the scope of the Medical Milk Commission, harmonize its working methods and requirements, and establish uniform standards for "Certified Milk."

OTTO P. GEIER, M.D., *Temporary Secretary.*

NATIONAL CONFEDERATION OF STATE MEDICAL EXAMINING AND LICENSING BOARDS. — The seventeenth annual meeting of the Confederation will be held at the Hotel Traymore, Atlantic City, N. J., June 4, 1907. The afternoon session will be convened at 2 o'clock, the evening session at 8. The following topics are announced for discussion: 1. "The Legality of State Medical Examinations and Inter-State Reciprocity in Medical Licensure." 2. "The Recognition of Sectarian Medicine by Statutory Law." 3. "Therapeutics: The Acme of Medical Art, the Bane of Sectarianism." 4. "One Board Laws for the Regulation of Medical Licensure." 5. "Definitions: (1) A Reputable Medical College; (2) The Practice of Medicine; (3) Preliminary Training." 6. "The Divided Examination for Medical Licensure." 7. "The Relative Functions of Degree-Conferring and Licensing Bodies." 8. "The Qualifications of Medical Teachers." 9. "The Qualifications of Medical Examiners."

MURRAY GALT MOTTER, M.D., *Secretary.*

RECENT DEATHS.

JOHN MARTIN HARLOW, M.D., M.M.S.S., died in Woburn May 13, 1907, aged eighty-seven years.

DR. DAVID H. GOODWILLIE, formerly of New York, died at his home in Yonkers on the Hudson, on May 15, in the seventy-fourth year of his age. He was born at Barnet, Vt., and after his graduation from the medical school of the University of Vermont, in 1868, pursued a course of study at Edinburgh. He was a well-known specialist in diseases of the mouth, nose and throat, and practised in New York City for more than thirty-five years. Six years ago he retired from active work and removed to Yonkers.

DR. WALTER DAY TRENWITH, of New York, died on May 16. He was graduated from the College of Physicians and Surgeons, New York, in 1895, and was especially interested in genito-urinary work, on topics connected with which he was a frequent contributor to current medical literature. At the time of his death he was one of the physicians of the Vanderbilt Clinic and of the out-patient department of the New York Hospital.

DR. MILTON SEE SHERWOOD, of New York, died at Pocantico Hills, Westchester County, N. Y., on May 14. He was graduated from the medical department of Yale University in 1898.

BOOKS AND PAMPHLETS RECEIVED.

Abstracts of a Year's Contributions to Internal Medicine. (From March 1, 1906, to March 1, 1907.) By G. W. McCaskey, M.D.

Around Africa via Lisbon, A Medical Tour. By Nicholas Senn, M.D., Ph.D., LL.D., C.M. Chicago: Press of the American Medical Association. 1907.

Evisceration of an Eyeball by a Single Mass of Heated Metal. By Charles A. Oliver, A.M., M.D. Reprint.

The Gross Appearance of the Tissues of the Iris in Epilepsy. By Charles A. Oliver, A.M., M.D., and Jay C. Knipe, M.D. Reprint.

Fernand Henrotin, A Commemorative Address. By Nicholas Senn, M.D., Ph.D., LL.D., C.M. Reprint.

Tendon Tissue versus Catgut. By N. Senn, M.D., Ph.D., LL.D. Reprint.

A Study of the Nativity, Sex and Age, Occupation and Social Condition of Three Thousand Four Hundred and Thirty-six Cases of Senile Cataract Operated Upon at the Wills' Hospital in Philadelphia. By Charles A. Oliver, A.M., M.D. Reprint.

The Cure of Consumption with Subcutaneous Injections of Oils. By Dr. T. B. Keyes. Reprint.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. IV. Edinburgh and London: William Green & Sons. 1907.

Cancer of the Rectum, Its Surgical Treatment, with an Appendix of 380 Cases. Jacksonian Prize Essay. Fifth edition. By Harrison Cripps, F.R.C.S. Illustrated. London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1907.

Original Articles.

GALLSTONES WITHOUT SYMPTOMS AND SYMPTOMS WITHOUT GALLSTONES.*

BY MAURICE H. RICHARDSON, M.D., BOSTON,
Professor of Clinical Surgery, Harvard University.

Measured by the percentage of correct deductions, the evidence upon which most diagnoses of gallstones are made is reliable — more reliable perhaps than the evidence upon which the diagnosis of any other deeply-seated and impalpable lesion is based.

Measured by the percentage of correct deductions, the evidence upon which some diagnoses are based is almost indisputable. Brief attacks of pain and jaundice with a tender and perceptible gall bladder make a group of symptoms so unmistakable that the deduction of gallstones is inevitable; in fact, any other deduction would be unreasonable. Brief attacks of pain with a tender and perceptible gall bladder, even without jaundice, will point almost indisputably to a gall bladder origin and to gallstones. In the great majority of cases the diagnosis of gallstones is easy. Indeed, the diagnosis in the typical case needs no further comment.

In the atypical and obscure case the diagnosis is much more difficult. Fortunately, the increasing frequency of explorations in the right upper quadrant has demonstrated so often the connection between these obscure and atypical symptoms and their pathological cause, that we can already in the great majority of cases make a correct inference, if not of gallstones, at least of a mechanical condition which for its relief demands mechanical measures.

The history and physical examination before exploration, with the anatomical demonstration of the biliary tract and adjacent viscera, afford both the physician and the surgeon indisputable control over their diagnosis. Such an opportunity as surgery now affords of studying the pathology of the whole abdomen in general, and of the right upper quadrant and epigastrium in particular, is not as yet appreciated by either physician or surgeon. The importance to the physician of a personal observation of the truth or error of his diagnosis, as demonstrated at operation, appeals to but few medical diagnosticians. And yet the opportunity of renewed physical examination under complete anesthesia is not one to be lightly thrown away. The importance to the surgeon of a thorough study of anatomical appearances during life is vital, for upon a correct interpretation of the anatomical changes depends the choice of operation and its success.

With such opportunities as are now afforded, a careful study is indicated of all symptoms which even remotely suggest gallstones, and especially atypical and obscure symptoms of the right upper quadrant, for which, until operations became frequent, no adequate cause could be predicted. Those symptoms, therefore, which suggest strongly but not markedly gallstones, but which may prove to be of quite different origin, must be seriously considered, lest, under the narrow limitations of a too positive diagnosis, an unnecessary operation be performed, or an imperative one be withheld.

Excepting lesions of the female pelvis and perhaps of the appendix, the most important diseases of the abdomen are situated in or near the right upper quadrant of the abdomen, where they manifest themselves by symptoms persistent, disabling and unresponsive to treatment. Organic diseases of the stomach, duodenum, liver, gall bladder, pancreas, right kidney, and hepatic flexure of the colon present symptoms of the widest diversity, some of which are commonly found in all; some of which are occasionally found in all; and some of which are found in but one. Pain, for example, in some of its forms is common to all; loss of weight, loss of appetite, and other constitutional symptoms may be present in all. But jaundice is present only in diseases which obstruct the biliary flow; hematemesis, only in diseases which involve the esophagus, stomach and duodenum; hematuria, only in lesions of the genito-urinary tract.

In the great majority of these lesions, especially at the operable stages, it can be taken for granted that the chief symptom will be pain in some form or other. The more pronounced any sign pointing to the cause of pain, the more positive the diagnosis, but the more advanced the disease. Gastric spasm, for example, locates the cause of pain in the pylorus, just as jaundice locates it in the biliary tract, or blood in the urinary. In the diagnosis of gallstones in their earliest stages without jaundice; in the diagnosis of pyloric growths without gastric spasm or hematemesis; in the diagnosis of renal tumors without hematuria — the chief symptom is usually pain and the character of that pain is the only guide at that early stage, when, in neoplasms, there is a chance of cure, or, in gallstones, an uncomplicated biliary tract. At a stage thus early, errors in diagnosis must occur; errors in indications for operation must occur; errors of judgment between the imperative and the needless operation must occur.

Fortunately, however, even if at operation no gallstones are found, other lesions are usually demonstrated and successfully remedied. It is the rarest of exceptions when the operation demonstrates only its own uselessness. It is excessively rare to find neither lesion nor relief, or to make the patient even worse than he was before operation.

These remarks are illustrated so frequently that no prolonged search for illustrative cases is necessary. The number of patients upon whom a needless operation is performed is very small, and yet improvement in our results demands that these cases be especially emphasized and avoided. But if we emphasize errors of commission, on the other hand we must emphasize with equal force the errors of omission. It is not difficult to find examples for both.

* Read before the Southern Surgical and Gynecological Association, Dec. 11, 1906.

A gentleman of sixty-two, after a very severe attack of left abdominal pain, with vomiting, rigidity, and distention, *without tenderness*, — symptoms which disappeared completely, — passed bloody urine. No more natural inferences could be drawn than that of left renal stone and reflex abdominal symptoms. A second attack proved fatal. Autopsy showed perforation of the posterior wall of the stomach, with stone in the left kidney. The diagnosis was right as far as it went, but it did not go far enough. The man had the benefit of the opinion of clinicians in whom I have the greatest confidence. At the second attack he was in such desperate straits that it was clear to all that his only chance lay in palliation. Could the real lesion have been detected before the second attack, he might have been saved.

A woman of forty-one (Vol. 24, p. 63) had suffered for two years from abdominal pain. In 1897 she was operated on; the appendix was removed, and also the right tube, which was dilated to about the size of a mandarin orange. In 1901 she was operated on for hernia in the scar. Two years later she died after an operation for gallstones, the details of which I do not know. Were the gallstones the major lesion, and the appendix and tube the minor?

A woman of forty-two (Vol. lxii, p. 57) was operated upon for pain supposed to be due to gallstones. I removed several; but the pain persisted and was finally accompanied by visible and violent gastric spasm. Cancerous stricture of the jejunum was found. This had not been detected at the first operation. Thorough extirpation has so far given complete relief.

A man of forty (Vol. 60, p. 125) was operated upon by another surgeon for supposed appendicitis, diagnosticated chiefly from right-sided pain. Operation brought no relief. There is now for the first time bloody urine, and the diagnosis of renal stone is probably correct.

For pain in the region of the appendix I have operated many times, even when the diagnosis was not positive. In some — very few — of these cases other diagnoses have later become apparent; and the results, as a whole, have been of the most gratifying kind. But, as I have said, these few exceptions in the present splendid development of surgery are the only things left for us to study and improve upon.

Under the diagnosis of gallstones, even of the most positive character, lie possibilities of error; and no one knows this fact so well as the operating surgeon. Indeed, no one sees as he does the intimate relation between cause and effect, and no one can possibly be in a better position to avoid errors in diagnosis and in the indications for treatment. But, be he never so experienced, so accurate in his observations, so logical in his deductions, cases will arise in which he will find himself completely mistaken. Instead of gastric perforation, he will find acute cholecystitis (Vol. lxii, p. 32); instead of gallstones, he will find chronic pancreatitis (Vol. l, p. 90); instead of pancreatic disease, he will find gallstones; instead of gall-bladder abscess, he will find renal abscess; instead of tumor of the gall bladder, he will find a hypernephroma (Vol. 44, p. 155); instead of gallstones, disease of the pylorus; instead of gallstones, adhesions and faulty position of viscera; instead of gallstones and cholecystitis, perforation of duodenal ulcer and general peritonitis. Furthermore, he will find not only the disease that has been diagnosticated, but other lesions as well, and lesions perhaps more likely to be the cause of the symptoms than that for which the operation was undertaken, as in the case cited of appendix and tube with gallstones; jejunal cancer and gallstones (Vol. lxii, p. 57); pancreatic cancer and gallstones (Vol. l, p. 90); pyloric adhesions and gallstones (Vol. 40, p. 171); intestinal cancer and gallstones (Vol. lix, p. 114); hepatic cancer with gallstones (Vol. lxii, p. 67, and Vol. 60, p. 173).

The commonest experience, however, is that in which, after a very positive diagnosis of gallstones, nothing is found. Were not an adequate explanation at hand, — the fact that the last gallstone may have been expelled at the last attack of pain, — this experience would be indeed hard to explain. No doubt this explanation is in some cases a satisfactory one. Indeed, it cannot be said in any case that this may not be the right one. But, with multiplying observations, it seems to me impossible that a long history of repeated attacks of pain, without the discovery of gallstones in the stools, without jaundice or other evidence of a protracted passage through the common duct, this explanation can be accepted as the right one. We must therefore consider the significance of symptoms in cases which by some kind of pain suggest gallstones but in which no gallstones are found; and we must also consider the significance of the absence of symptoms when gallstones *are* found, perhaps filling a gall bladder which by its thickening and contraction expresses the slow and painless changes of many years.

Why is it that in some cases a single stone causes pain of the most excruciating kind, whereas in others many stones cause none? An answer immediately suggests itself — the difference in the impaction; its situation; the size of the stone. But have we not learned that this is much too easy and superficial a view of the subject? In one instance at least the attacks of pain recurred after the removal of about a hundred stones (Vol. 63, p. 43). The attacks became frequent and unbearable. Inasmuch as I had many times observed pain after cholecystostomy and drainage, I looked upon this case as similar to those in which there had been pain, which later disappeared. Dr. Jones operated on this patient for me, and removed the gall bladder. He found it adherent to the old cicatrix and surrounded by adherent omentum. It was dilated and contained about six ounces of dark — almost black — thickened bile. The adhesions extended down about the cystic duct, but no definite band or kink was found. The head of the pancreas was thickened to about an inch and a quarter. No stone could be found after a prolonged search. The cystic duct, when opened, proved to be very tortuous. The gall bladder wall was somewhat thinned by the dilatation, especially at the fundus where it had been drained. The patient made a good recovery. In this case, however, there was adequate cause for cholecystitis either in the

presence of gallstones before the first operation, or in a possible lesion of the mucous membrane during tube drainage.[1]

I have for many years — but particularly of late — been impressed by the value and interest of diagnosis as a healthy and stimulating intellectual exercise which highly cultivates the powers of observation and deduction. The surgeon has opportunities of testing and verifying not only the significance of his histories, but the results of his own physical examinations and those of others, and especially the deductions that he draws from the evidence at hand.

Of all the areas in the body (excepting perhaps the field of cerebral diagnosis, where correct deductions from accurate observations offer the most extraordinary opportunity for the highest intellectual endeavor) none equals in the variety and frequency of disease the right upper quadrant of the abdomen, for there lie possibilities of widely differing lesions with symptoms more or less common to all. The similarity of symptoms, especially in the early and best operable stages of all these lesions, makes correct diagnosis extremely difficult; but it makes correctness of diagnosis and consequent efficiency of treatment of inestimable value to the patient. I cannot but feel, therefore, that at the present time there is no task set before the surgeon that is more productive of good than that of the early recognition of those lesions of the right upper quadrant which in their early manifestations are cured with little if any danger, but only with great and unavoidable danger in their later. But in emphasizing the importance of diagnosis in the right upper quadrant, as well as elsewhere, one must not in his enthusiasm forget that, delightful and satisfactory as it may be to make correct deductions from accurate observations, internal diagnosis is an exceedingly difficult and elusive problem, and the diagnostician must be particularly careful in making those diagnoses which condemn the patient, without even an attempt at relief, to an inevitable death. Even though the observer has, through years of general practice, of the practice of general surgery and of abdominal surgery, acquired great nicety of diagnostic accuracy, yet, skillful and logical though he may be, he must be on his guard lest he make such an error on the side of conservatism and inoperability as to remove the patient's only chance of cure.

We are told that, at the end of a long life devoted to the Greek definite article, the professor's chief regret was that he had not confined himself to the dative case. So may we sometimes feel, in spreading our observation over the wide field of general surgery,— we may regret that we have not devoted our lives to the abdomen, or to a single lesion in the abdomen. Seriously, however, the best way to study a particular subject is to approach it through subjects allied to it. The best education for the surgeon is general practice; for the abdominal surgeon, general surgery.

In the subject under consideration, I am convinced that further progress can best be made on frankly admitting the errors of diagnosis and treatment, but more especially the errors of diagnosis. In gall-bladder surgery, therefore, I wish to call attention to various errors in diagnosis and their results, whether beneficial or injurious, whether influencing the course of the real disease in a manner favorable or unfavorable.

These errors have come under my own personal observation in cases of my own, and are errors for which I have been partly if not wholly responsible. It seems but fair to myself and others concerned in them to explain that they are very infrequent. They are selected from many hundred cases, in which, operated and unoperated, there has been a correct diagnosis in an overwhelming majority. Indeed, were it not that the correctness of predictions has been almost invariable, I should not have been so deeply impressed by the occurrence of mistakes or so eager to prevent them.

The great deterrent to conservatism, especially in abdominal surgery, is the difficulty of demonstrating beyond a doubt that the greater rather than the lesser evil is present; that, for example, when gallstones are diagnosticated, there is a lesion more serious than that of gallstones, rather than one less serious — or even no lesion at all. Estimated by the chagrin which the surgeon feels, perhaps the worst error is that of performing an absolutely unnecessary operation, by which, however, the patient receives no injury; estimated by his remorse, he feels that there is none greater than that following a perfectly unnecessary operation by which the patient's life is sacrificed, unless perhaps, the self-reproach is as great when he has withheld an operation essential to life; estimated by the evil to the patient, none can be greater than the infliction of a fatal operation for a cause which does not exist, for the withholding of an operation does not always mean death; few lesions are essentially fatal without relief, and those few seldom unrecognized. Estimated by the evil to the patient when death follows, the infliction of an unnecessary operation or the withholding of a necessary one, has the same result; but, estimated by the probable evil, there is of course no comparison, because the great majority of unnecessary operations at least do no harm, whereas the great majority of lesions demanding operation are, without that operation, fatal.

Estimated by the good to the patient, the application of surgical measures to the lesions which may, however doubtfully, demand them, is vastly greater than the withholding of such measures on the ground that no lesions exist to demand them. Estimated by the sum total of evil and chagrin, self-condemnation and remorse, the worst are comprised in the inflictions of unnecessary operations and the withholding of necessary ones. Estimated by the least evil to the least number, the infliction of the unnecessary operation is incalculably less. Estimated by the greatest possible

[1] Not long after this operation the pain recurred with renewed violence. While we were discussing the question of what it was best to do, the patient passed by rectum a stone which we hope is the last one. This case illustrates what the probable cause of post-operative gallstone pain is,— an overlooked stone or fragment.

good to the greatest number, successful effort lies in the elimination of the unnecessary operation and the selection of the necessary one.

Successful effort then demands that one cultivate to its highest perfection the powers of diagnosis.

I must ask the indulgence of this association for emphasizing facts which are indeed truisms; but even truisms may be neglected or forgotten. The tendency is toward hasty, imperfect and inaccurate diagnosis, because operative diagnosis is so easy and unmistakable. This tendency is surely a pernicious one, and one to be resisted with all our might. No greater reproach can be brought against the surgical art than that it is only an art, and that, as ordinarily practised, it can never rise, in the hands of the surgeons themselves, to the plane of a science. Whenever time permits, the proposed operation should be based upon the most careful and exhaustive study of the patient; or, still better, no operation should be performed until that operation, by a positive diagnosis, has been found necessary. Every lesion should be regarded as one not demanding or justifying operation until, in the particular patient, that demand has been completely justified. The exploratory laparotomy, for example, should be reserved for those cases in which security of the patient demands *certainty* of diagnosis, and those in which there is everything to gain, and little to lose, by exploration.

The diagnosis of gallstones is usually easy and beyond doubt. The cases which require study are those comprised in my title, for those are the ones in which errors of commission and of omission are to be found. One will occasionally find nothing abnormal when he confidently expects to find gallstones. In some cases, though he will find no gallstones, he will find other lesions like chronic pancreatitis or pancreatic cancer; in others, the bile will be thick, black and tenacious, without gallstones — cases in which cholecystostomy and drainage are followed by complete and permanent recovery (Vol. 48, p. 117); in still other cases (Vol. 57, p. 167, and Vol. 59, p. 102) there will be an unchanged gall bladder and unchanged bile. When in the doubtful case, the diagnosis of gallstones seems, on the whole, the most probable, gallstones will in the majority of instances be found.

The errors in diagnosis are met with not only when no physical signs are present, but when the history is not characteristic — or at least not in accordance with our present and recent ideas; when, for example, the only complaint is that of an obscure, non-localized pain; a discomfort; a distress; a grinding, boring sensation (of which the patient will say that it is hard for her to tell when it begins, when it ends, or just where it is located). In a few instances the pain may be characteristic of gallstones, as to onset, situation, direction, intensity, " depth, breadth and length," persistence and termination. After a single attack of characteristic gallstone pain, failure to discover any stone or abnormality in the gall bladder is quite conclusive that the only stone or stones were actually expelled. Indeed, the more characteristic the attack is of successful ejection, the less will be the anatomical changes in the biliary tract. On the other hand, the more obscure and uncharacteristic the attack, the greater will be the anatomical changes.

In many of these cases of extensive anatomical changes the history will often be devoid of symptoms suggesting in the least the presence of a gallstone origin. When I have found gallstones in the course of other operations, and have been over the history in the light of the demonstrated facts, I have seldom found a characteristic history of gallstones. True, I have found complaints for which the demonstrated presence of gallstones and their anatomical effects offer an explanation, and doubtless the correct one; but except in certain cases this explanation, in the light of previous knowledge and experience, would have been regarded as absurd. Indeed, in the light of present knowledge, such histories would still be regarded, by some at least, as totally inadequate for a reasonable diagnosis of gallstones or for a justifiable operation.

In some cases I have been obliged to make the most searching cross-examination to detect a single suggestive symptom. I do not refer to gallstones harmlessly suspended in a gall bladder full of bile; but to gallstones filling to its utmost capacity a gall bladder not materially changed, and to gallstones so tightly grasped by a thickened and contracted gall bladder as to be deeply embedded in its mucous membrane.

In comparing the evils of an inaccurate diagnosis, we are forced, I think, to the conclusion that our failure to recognize early the presence of gallstones is by far the greatest evil that attends our treatment of disease of the biliary tract. An operation which demonstrates nothing organic in the right upper quadrant is a chagrin, not to say a humiliation; but it has the virtue of at least demonstrating the absence of organic disease — a by no means slight merit — and it has the virtue of comparative safety. I am not so sure that the satisfaction of knowing beyond a doubt that there is no anatomical cause for persistent and disabling symptoms in the right upper quadrant is not well worth the risk of exploration. Considering the numerous causes of symptoms in that anatomical area from diseases other than gallstones, the satisfaction of an unsuccessful search for organic lesions is all the greater.

It is a difficult task to satisfy patient and family and friends with the account of an unnecessary surgical operation, and especially a fatal one. We probably all have felt that, by the perversity of fate, our worst disasters have followed unnecessary, or at least not urgent, operations. When a patient dies from the anesthetic in a tooth extraction, in an operation for hemorrhoids, for a small shoulder lipoma; in a simple ovariotomy, appendectomy, or an unfruitful exploration; when she develops pneumonia, pleurisy, or a fulminating wound infection; when she bleeds to death from an operation upon a torn cervix; when death takes place from suppression of urine, acute

parotitis, a spreading phagedena, a gas infection, a pulmonary embolism, tetanus, or even typhoid fever and other infectious diseases — when these things do occur, we have all felt the inadequacy of explanation or excuse.

So in operations for supposed gallstones in which nothing is found, we are forced to admit to ourselves the commission of a surgical mistake, one which would never have been committed were our powers of diagnosis more reliable. But can we ever hope to be free from occasional errors?

The only errors from which we can and ought to be free are those which depend upon inadequate study — upon haste and carelessness in observation and upon precipitancy of deduction. But we must not forget that these causes of error may lead the conservative man to overlook serious diseases quite as frequently as they may tempt the radical to explore for diseases which do not exist.

Under the heading of gallstones without symptoms may be classed those lesions in which there is in reality a gallstone origin, but in which the symptoms are dependent upon remote effects. Acute intestinal obstruction, for example, is occasionally caused by gallstones, and this fact must be borne in mind in the diagnosis of lesions causing acute obstruction. In the two cases which I now recall, a gallstone cause was not considered at all. The diagnosis of complete obstruction was so evident that immediate exploration was made and showed the gallstone cause. In the first case, however, no previous symptoms suggesting gallstones had ever been noticed; even the most searching inquiries were negative, and not a moment's pain or discomfort was described. I cannot but think, however, that, with our present experience, we should have elicited at least a history of indigestion. In the second case, that of a woman of sixty-eight (Vol. lxii, p. 45), my diagnosis was chronic intestinal obstruction, probably from cancer. Dr. Clara J. Alexander found a gallstone an inch in diameter, an inch and a quarter long, and three inches in circumference, completely obstructing the small intestine. In going over this history before making my diagnosis I paid little or no attention to two facts. This history (taken from the records of the New England Hospital for Women and Children) was as follows: "Patient aged sixty-eight. Family history negative. No acute illness, except children's diseases. Grippe seven years ago. Headache rather frequent. Three years ago was in hospital for *attack of indigestion*. [Italics mine.] Two years ago was in hospital twice; once for chronic bronchitis and again for *chronic gastritis*. Both times went home improved. Appetite good. Has gained flesh in last two years." "While in usual health, four days before entrance to hospital, began to have pain in region of the umbilicus, sharp and sickening in character, lasting only a few seconds and gradually wearing away. There were also nausea and vomiting. Attacks continued at varying intervals. Bowels moved up to the last day." In the light of the demonstrated cause, how significant the attacks of indigestion and chronic gastritis; how important the usual good health and the good appetite, and the fact that there had been no loss of flesh! As in this case, so, I dare say, in many another, the gallstones are reported as without symptoms, when the fact is that we are of insufficient acumen to recognize the symptoms, when, especially in the light of operative demonstration, they seem glaringly conspicuous.

The absence of gallstone pain and discomfort in histories must not receive too much weight in eliminating gallstones from the diagnosis; for, as I am saying, they may exist and cause serious anatomical lesions with few if any symptoms of pain or any of its manifestations. Nor must they be positively diagnosticated in the presence of jaundice; for many cases are met with in which jaundice exists without a gallstone cause; and many, it is true, in which the jaundice is the only symptom of gallstones. In considering gallstones without symptoms, therefore, the possibility of gallstones must always be borne in mind if a lesion is suspected anywhere in the biliary tract or contiguous to it, whether the lesion has symptoms suggestive of gallstones or not. Gallstones without symptoms are found usually in the course of abdominal operations for other lesions, when a systematic examination is made of the abdominal contents. They are also found when some other and more probable diagnosis has been made — ulcer of the pylorus or duodenum, for example, some lesion of the kidney, or even acute intestinal obstruction.

Scattered through my records of recent years are many cases which illustrate these statements. In most of them, however, the history is at fault. In the light of the operative demonstration, as I have said, the significance of apparently unimportant symptoms becomes apparent.

At an exploration of cancer of the ascending colon in a man of fifty-nine (Vol. lix, p. 117) the gall bladder was found tightly packed with gallstones, which had never been suspected. Review of the history taken in much detail shows the following expressions which might have been based upon the condition of the gall bladder: "Miserable, heavy pain in the left renal region"; "a dull, grinding pain,— it is awful." A tumor was later discovered in the ascending colon, and to this was attributed the pain. There was, however, no intestinal obstruction at any time, and intestinal cancer without obstruction is usually painless. Left-sided pain in serious gallstone lesions is not so very uncommon, and in this case it was probably caused by the gall-bladder lesion.

A woman of forty-four (36–27) was operated on for removal of a large fibroid, and at this operation a stone was found completely filling the gall bladder. Not a word in the history taken suggested gallstones. Later the patient had "cramps in pit of stomach and breast. No pain in right side. Have to be very careful what I eat, and cannot lie on right abdomen. I have a good deal of pain, but I have got used to it and do not mind anything about it." Over the liver was a raw blister. The patient declared that before the

hysterectomy she had always been perfectly well except for "bilious attacks," on account of which she had to be very careful in her diet. The bilious attacks before operation and the obscure symptoms after were probably owing to the condition of the gall bladder.

A woman of forty-nine (vol. lvii, p. 59) at an hysterectomy for fibroid, was found to have a number of gallstones. Forty stones were removed by cholecystostomy. On reviewing the history of the case I find: "For six months was treated for gastritis and persistent pain in the epigastrium — colic spells without jaundice. Tenderness in gall bladder. Better examine under ether and explore gall bladder and pylorus." In this case I find that there were very positive indications of gall-bladder disease; but in the presence of a bleeding fibroid the significance of a gall-bladder involvement was lost.

At operation for removal of double multilocular ovarian dermoid cysts in a woman of fifty-one (62–159) we found the gall bladder contracted upon one large stone. A review of the history shows only this statement: "She has a fair appetite, but considerable gas in the stomach." In this patient it may fairly be said that there were at no time any symptoms of gallstones; and yet "gas in the stomach" may have been her way of expressing a gallstone irritation.

A woman of thirty (62–55), operated upon for double salpingitis "for a year had had pain low down in the back and in the right lower quadrant. Things seem to knot up like cramps." In this case there was nothing that could reasonably be attributed to gallstones, but a gallstone was felt impacted in the cystic near the common duct.

On inquiry I have been informed that "previous to her operation she had attacks of what was called acute indigestion, and several times she called a physician to get relief. She had not been troubled with this for at least two years prior to operation. Occasionally she was heard to complain for a moment, of a gastric pain but nothing of any consequence. This she never associated in any way with the trouble for which she underwent the operation. She has never complained of any attacks since."

From this patient's age, and from the records, no one would have had a suspicion of gallstones. Had she died of some acute disease, and had the stone been found at autopsy, her case would have been classed as one of the numerous instances of gallstones without symptoms. Knowing exactly the size and situation of the stone, I have little doubt that it will eventually be passed into the duodenum. An operation performed for gallstone symptoms would very likely prove useless; for there is but one stone, and that, as I say, small enough to be passed in a single brief colic. This information shows that the "acute indigestion" was the missing evidence of gallstone irritation, which, if we search carefully, we shall find in most if not in all cases.

In the case of a woman of sixty-three, at the removal of a large ovarian cyst, I found a large, flabby gall bladder containing many small stones. The abdominal symptoms had lasted six years. The only symptoms referred to the epigastrium was nausea, of which the patient complained a good deal, and which was probably due to the pressure of the cyst.

At an abdominal hysterectomy for fibroid (July 14, 1906) in a woman of sixty-six (62–59), a small gall bladder was found contracted upon several small stones, one of which — the size of a pea — was situated in the cystic duct close to the common. Going over her history I find (in the writing of Dr. F. W. Palfrey): "Is said to have a fibroid. Her only complaint is indigestion for two weeks — distress in stomach and vomiting. Bowels moved only with croton oil at the beginning of her trouble, two weeks ago; since then they have moved of themselves. She has no pain — no feeling of weight or pressure. Has noticed an enlargement of the abdomen. No bleeding from vagina. Appetite good until the past few days. No loss of weight. Thirty-eight years before had a 'typhoid dysentery' followed by 'consumption of the blood'." Three months later (Oct. 9, 1906) the patient reported to me "in splendid health. Looks extremely well; red cheeks. No pain from gallstones. Has had 'those vomiting spells.' She said, 'In the first place, I would feel as if my stomach refused to take anything I would swallow. That would be all there was to it. Some days I would vomit everything I would take into the mouth. Night before last something happened: I had dinner at 4.30. Had supper at eight or nine and went to bed. Soon began to have nausea. There was no pain. I didn't vomit. The attack lasted a short time, and next morning I was all right. Have never had any gallstone colic.'"

In this case as no doubt in a great many others, the operation, though plainly indicated, even demanded, was performed upon the less acute and less serious lesion. In the light of the operation, the nausea and indigestion had nothing to do with the fibroid. Though the growth was a large one, there was neither pain, pressure, nor hemorrhage,— in fact, it was causing no symptoms. But for my unwillingness to impose one capital operation upon another, I should have removed the gallstones.

These cases, taken mostly from the records of the past year, are by no means infrequent. In bringing them together I expected to show fewer signs of gallstones in the histories studied after the demonstration of stones. It is, I think, true that few gallstones exist which do not cause symptoms of some kind at some time or other. It is true, too, that these symptoms are so unusual, and so unlike our preconceived ideas, as to be of themselves either non-suggestive or wildly and absurdly so. I am seriously of the opinion, nevertheless, that any gastric or epigastric symptoms, persistent and unmistakable, recurring at irregular intervals or not recurring at all, are, in the presence of gallstones, usually due to those stones; and that progress in the direction of accurate diagnosis demands long-continued observation of patients in whom stones have been demonstrated and left undisturbed.

Recently one of the younger men to whom I referred a case of supposed gastritis, far away in the country, made a diagnosis of acute cholecystitis, and advised operation on subsidence of the acute attack, or in case the symptoms were growing worse. The patient suddenly and unexpectedly died of the perforation of the duodenum from unsuspected ulcer. A week or two later the same physician, in consultation with one of the younger men, a skillful and experienced surgeon in whom, as well as the physician, I have the greatest possible confidence, advised in another case an

operation for supposed gallstones. Present at the operation was an older physician who had scouted the idea of gallstones and had diagnosticated gastric ulcer. One can imagine the chagrin of the younger men at finding no gallstones when gallstones had been confidently expected. There was no gastric ulcer; but the bile was thick, dark and tenacious; there were masses of mucus suspended in it. In a word, there was an abnormal condition of the gall bladder inviting infection, causing colics, and, in my belief and experience, making the gall bladder the nidus of future gallstones — a condition for which cholecystostomy and drainage are the best remedies. There was no cause whatever for chagrin. The only error in such cases is in limiting the cause of symptoms to an actual crystalline formation. This experience I have had several times. Furthermore, I have operated for gallstones and have not found even the changed bile, or any other abnormal condition in the biliary tract.

A physician from Philadelphia (57–167), thirty-nine years of age, six months after typhoid (in 1889) had his first attack of colic. During two years the attacks were repeated every three months, and were accompanied by jaundice. No stones were found in the stools. From that time to operation (in November, 1905) he occasionally had jaundice, induced apparently by fatigue, emotion, or indiscretion in diet. The colics ceased in 1891; but there has been ever since more or less pain in the region of the gall bladder. The pain has rarely been radiating, but has been distinctly circumscribed in the gall-bladder region. The diagnosis was cholecystitis. The patient was in the hospital two or three months with jaundice and clay-colored stools. He had a "subacute gastritis or duodenitis," and the temperature went as high as 104°. There was a good deal of gastro-intestinal fermentation with eructations. The diagnosis of gallstones was made by one of the best surgeons in America, upon whose diagnosis and recommendation I would willingly have operated even had I not concurred fully in his diagnosis. At operation I found the gall bladder rather large and full of fluid. No stones were felt in the gall bladder or cystic or common duct. Between the top and left side of the gall bladder, running over to the stomach and constricting slightly the pylorus, were a number of old adhesions, probably of inflammatory origin. These adhesions were dissected away, so that the gall bladder and pylorus were entirely freed.

I was much surprised to find no stones. The bile was distinctly changed; it was dark, dense, viscid and opaque. On drainage it became thin, transparent, and yellow, like normal bile. This patient was completely cured.

A girl of twenty-three from Honolulu (59–102) had been operated upon for appendicitis in 1904, just after an acute attack. There was said to have been sepsis, so that recovery was slow and imperfect. After the operation there was pain in the right side, with occasional severe exacerbations. The pain was intermittent and hard to bear, recurring every month or so. It radiated from one spot, and was accompanied by neither vomiting nor jaundice. After the pain there was tenderness in the gall bladder. Gallstones were diagnosticated by one of the most experienced and skillful of the younger physicians in Boston. The diagnosis was based chiefly upon the fact that, after an acute attack, he found definite tenderness in the gall bladder. At the operation the gall bladder was found filled with dark green bile of greatly increased consistency. The common and hepatic ducts were free of stones. The head of the pancreas seemed thicker than usual. By means of a tube the gall bladder was drained for two or three weeks. Then it was allowed spontaneously to close. The patient was completely relieved of her pain, and has been well ever since.

In this case the condition of the bile was such that its passage through the cystic duct was difficult. As in all such cases, it ran very slowly through the small aspirating needle.

In another case, that of a woman of about thirty-five (Operation Book, 1902, p. 213), the diagnosis of gallstones had been made from intermittent attacks of colic, with subsequent tenderness over the gall bladder. The diagnosis in this case was made by the husband, who was a surgeon of experience. The bile was precisely like that found in the two preceding cases. Drainage for two or three weeks resulted in perfect and permanent cure.

The last case I have seen was that of a man of forty-eight (Vol. 64, p. 77) who for two or three years had had pain in the right hypochondrium, gradually increasing in severity. The last attack, three days before my examination, was described as a sudden onset of severe pain, like the stab of a knife, in the exact region of the gall bladder. The pain radiated through the abdomen to the right shoulder. There was no jaundice. These attacks were irregular in their appearance. I found the gall bladder perceptible and prominent, and sent the patient to the Massachusetts General Hospital, where the assistant surgeon operated for me. The gall bladder was soft, non-adherent and not distended. It contained no stones, and was apparently normal in every way. The adjacent viscera were all normal to the touch. The gall bladder was not opened. The patient made a good recovery, and has had no pain since.

This is a very recent case; the patient has just been discharged from the hospital. I did not see this operation, but an absolute demonstration of the condition of the interior of the gall bladder was not made. I have found in the gall bladder gallstones which I could not feel before the gall bladder was opened. I have had the gall bladder out of the body, between my fingers, and then have been unable to feel a gallstone inside.

The final case was that of a woman of about fifty upon whom I have just operated for the closure of a large omental hernia, following an operation for supposed gallstones. This patient had the symptoms of gallstones, but at the first operation, which was performed by an assistant surgeon at the Massachusetts General Hospital, none were found. The head of the pancreas was thickened, as in the cases of supposed pancreatitis. The patient was entirely cured by the operation, and came back at the end of a year for closure of the hernia.

Scattered through my records in the past ten years are several cases of this kind. I am convinced that in many instances the real lesion is one of the gall bladder, with such changes in its contents that they are emptied through the cystic duct only with increased difficulty. This results in a painful spasm, just as does the passage of a stone through the duct. It is a matter of conjec-

ture whether this condition of the bile is one which eventually produces gallstones. I have sometimes found, in bile thus changed, small, soft stones, apparently of recent formation. The chief symptom in these cases is pain — the gall bladder contracts with such violence as to produce a sudden severe spasm. The pathological changes may be slight or extensive, without gallstones or with them. The inference must not be too hastily drawn, that because no actual crystalline masses are found in the gall bladder, that viscus and its contents are healthy. I should not regard a gall bladder as demonstrated to be normal unless the interior of the gall bladder itself had been actually examined and the condition of its contents accurately demonstrated.

There remains much for us to learn as to the effect of gallstones in the gall bladder, especially in those early stages when the stones have hitherto been regarded as innocuous and without symptoms. In going over my histories in the light of the demonstrated lesion, I find it difficult in any case to establish an indisputable history of inoffending. So common are gallstones, especially in women beyond the menopause, that it seems to me wise, in all abdominal cases — no matter what the diagnosis — to question carefully with reference to obscure abdominal symptoms, especially those connected with digestion. Not only may the surgeon predict the presence of gallstones in patients operated upon for something entirely different, perhaps for a lesion in the pelvis, but he may discuss with the patient and her friends the desirability of removing such a menace to health whenever the additional operation would add but little to the risk. In proposing an operation for the removal of a fibroid, for example, one might, by the detection in the history of obscure epigastric symptoms, be prepared to relieve some abnormal condition in that region. I have found not only changes in the biliary tract, but many variations from the normal in the stomachs of women operated upon for pelvic diseases. I have not felt at liberty, without consulting the patient, to add the burden of operation upon the stomach, upon the gall bladder, or upon the appendix. In future I shall make as careful inquiry into digestive disturbances as into the condition of the heart, lungs and kidneys. Not that I have not always noted the appetite and the processes of nutrition; but, as in one of the cases already reported, previous attacks of indigestion and colic often are not mentioned by the patient, because she thinks that they are in no way connected with her complaint, which in the case mentioned was salpingitis.

I have sometimes felt, of recent years, that in writing much upon the surgery of the biliary tract I have been perhaps open to the criticism of telling a twice-told tale — of threshing out old straw; but still I must insist that for me, at least, the right upper quadrant is a field far from being fully satisfactorily explored and understood. Every day I see conditions for which, in my own experience or in the literature of the subject, there is no precedent. The two conditions which I occasionally meet with — comprised in the title of this paper — present questions which demand much more experience than I, for one, am able to give for their perfect solution, which can be settled only by renewed study and abundant discussion.

THE USE OF TUBERCULIN IN THE EARLY DIAGNOSIS OF TUBERCULOSIS IN A LARGE OUT-PATIENT CLINIC.

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In the rush of work in a large out-patient clinic there is nothing harder than to make what may be called an early diagnosis of pulmonary tuberculosis. Yet in such a disease as consumption, which if detected in an early stage offers every chance of a cure or an arrest, nothing can be of greater importance to the patient or to the community at large. By the term "early diagnosis" we mean that stage in the disease when the symptoms are more constitutional than local, when there is only a little throat cough, little if any expectoration, certainly no bacilli in the sputum, and no marked evidence of disease in the lungs. However certain the physician may be that a given patient has tuberculosis in this early stage, it is far more satisfactory to him and to the patient (and this is especially true in dealing with the poorer classes) to have at least one definite thing in addition to several other indefinite signs and symptoms on which to base conclusions. We firmly believe that in a certain number of selected cases a carefully given tuberculin test will in many instances give just such definite information and enable the physician to distinguish between debility and anemia due to tuberculosis and that due to other less important causes. We also maintain that good results can be obtained from the use of tuberculin even under the somewhat adverse conditions that are met with in a large out-patient clinic.

In a recent article on the subject of tuberculosis,[1] Dr. S. A. Knopf, of New York, comes out with the somewhat startling statement that the use of tuberculin in diagnosis is distinctly dangerous. He says: "I am not in favor of tuberculin as a means of diagnosticating tuberculosis. I know it is not infallible. . . . Such men as Profs. E. G. Janeway, of New York City, and Frank Billings, of Chicago, have expressed themselves to me personally the same opinion based on actual experience and advise against the use of tuberculin for this reason." It seems rather a pity that a man of Knopf's standing should make such a statement as this without qualifying it in any way. It is hardly worth while to quote statistics in answer to this. Tuberculin, both in diagnosis and in treatment, is used all over the world. The opinion of most of the great workers in this field is distinctly contrary to that expressed

[1] Knopf: Tuberculosis in Prisons, N. Y. Med. Jour., Nov. 7, 1907.

by Dr. Knopf. Koch, Moeller, Turban, Trudeau and scores of others indorse it. Osler said in 1901, "I remember no cases in which injurious results have followed injections." Trudeau says: "Any danger of aggravating the patient's condition lies in its faulty or reckless administration." Dr. F. C. Shattuck in a period of over ten years, during which he has constantly used tuberculin in diagnosis, has seen only one untoward result.

Thinking that there must be some misunderstanding in this matter, one of us wrote to both the gentlemen quoted by Knopf as supporting him in condemning the use of tuberculin.

Dr. Janeway said that he would not have expressed so unqualified a prejudice against the use of tuberculin; occasionally in carefully selected cases he thinks it useful. He has seen one or two sad results following its use. Personally he would prefer to "worry along" without it in the vast majority of cases.

Dr. Billings wrote: "My objection to its use as stated was that if used indiscriminately and carelessly it was a potent agent capable of producing serious harm. Used as you describe in the dose of .1 mgm., I think it would be entirely harmless. I have known of its use beginning with a dose of 5 or even 10 mgm. and I have also seen it used as a diagnostic agent in patients with temperatures ranging as high as 103.° I am opposed to its use in such doses and also to its use as a diagnostic agent in febrile conditions, for I believe that in the first instance it may be dangerous and in the latter it is of no value in febrile conditions. In other words, I am opposed to the indiscriminate use of tuberculin in doses which may be dangerous by individuals who do not use other methods of diagnosis which would ordinarily be sufficient."

We are quite in accord with this scientific and conservative point of view. Tuberculin is unnecessary in many cases and dangerous in others. Patients who have had recent severe hemorrhages, with definite signs in the lungs, with fever of over 99.5°, and all advanced or moderately advanced cases of tuberculosis whether of the lungs or elsewhere, should not be given tuberculin for diagnosis, nor, indeed, is it in any way needed in such cases, except in a few rare instances. Cases of suspected bilateral involvement of the kidneys are not available for this test, as acute congestion with subsequent suppression of urine may be brought on by the acute inflammation set up about foci in each kidney. Dr. Billings spoke of a case of Addison's disease which died shortly after an injection of tuberculin and apparently as a result of it. We have seen a similar case with the same result after an initial injection of 8 mgm. of old tuberculin; Dr. Ross, of Toronto, has seen a fatal result in two cases of Addison's disease after tuberculin. Such use of tuberculin is to be deplored and cannot be called either safe or conservative, especially where the patients are not under immediate close observation.

Excluding all these cases, however, there are many others whom it is not only safe but advisable to put through a tuberculin test. Patients with debility and anemia for which no cause can be found, those with a bad family history, a little cough and signs in the lungs which go under the term "suspicious," — these and many others will be benefited by a tuberculin test providing that it is given in the proper dosage and under proper precautions. We cannot urge too strongly that in every case all other means of diagnosis should first be tried, leaving tuberculin only as a final resort. There should be several careful examinations of the sputum, which may be digested and the residue centrifugalized; potassium iodide should be prescribed to loosen up the process; temperature records should be kept at home to find out if there is any evening rise, and there should be frequent and thorough chest examinations. Then, if no positive conclusion can be reached, and then only, should tuberculin be given. Furthermore, an agent as powerful for good or harm as tuberculin is certainly not the thing for the general practitioner or for the average untrained house-officer to use unless he has looked into the subject and understands its dangers. In a large out-patient clinic one or two men trained in its use who can tell a slight but positive reaction, who know when and how to give it without danger to the patient should be delegated to do this work. In their hands, results may be of great value with a minimum of risk.

The statement is often made that tuberculin is too delicate an agent; that it shows too much, and that people in perfect health will react to it. If, according to the German saying, "*Jedermann hat am Ende ein Bischen Tuberculose*," if we all have a tuberculous focus somewhere in us, most of us will undoubtedly react to tuberculin in a greater or less degree; but as long as we are in good health, such a reaction need not worry us greatly. If on the other hand there has been loss of weight and strength, if there are suspicious signs and symptoms in the lungs and elsewhere, if under these conditions a person reacts to tuberculin properly given, it makes not the slightest difference where the process is, lungs, glands, kidney or anywhere else, such a person is tuberculous and should be treated as such.

In a recent article by one of us, mention was made of the need of an aggressive attitude in handling consumptives in a large out-patient clinic. We are more than ever convinced of the need of this, especially in using tuberculin. All of our patients come from the male and female departments of the Massachusetts General Hospital Out-Patient clinic. During the year 1905–1906, our patients were given tuberculin while attending the regular clinic; during the past year the tuberculous or suspected tuberculous cases were handled in groups, so-called "tuberculosis classes," and instead of isolated cases there were numbers of patients all of whom were taking tuberculin either for diagnosis or as a therapeutic agent. The advantage of this system is very manifest. Formerly it was only after a long argument that patients could be persuaded to undergo the test; in many instances, after the

initial dose the patient felt better and disappeared from the clinic or refused to have another injection. Frequently a broken thermometer was the cause of the non-appearance of an interesting case. Under this system previous to the present year there were some fifty or sixty cases who received only a partial test. In contrast to this, under our present arrangement by which patients are seen in groups, of the last thirty cases all have been carried to completion owing to the force of example and the intelligent co-operation of patient and physician.

Under ideal conditions a patient who is to take tuberculin should be in bed during the entire test and for the three days previous and should have a nurse who could take the temperature every two hours and make careful observations of symptoms and the general condition. In our cases it was impossible to do this. There were no beds in the hospital that could be used for this purpose and we had to do the best we could under the circumstances. The chances for error are large, but with careful training of the patient and close questioning by the doctors many of these can be eliminated. We carry out a certain definite routine in every case. No patient is given tuberculin if the diagnosis can be made in any other way. Most of the patients have been under observation by the physicians in charge of the department from whence they come and are only turned over to us for a tuberculin test after all other means of diagnosis have been exhausted. The reason for giving tuberculin is first explained to the patient or to his friends. He deposits fifty cents for a thermometer which is refunded if it is returned unbroken. An assistant shows the patient how to take his temperature and gives him a card with the days and hours written out at which he is to take it. The patient then goes home, quits work if possible, and returns in three days at the next class meeting with his record. This is inspected and his ability to read the thermometer correctly is again tested. If he has not done it properly, he is sent home to take it for three days more. If the temperature taken at home when the patient is quiet is at any time over 99.5°, tuberculin is rarely given. In every case the range of temperature and the maximum is noted in the record. If all is satisfactory, the patient is now ready for the first dose, .1 mgm. In a few cases where a diagnosis is very important on account of a patient's close intercourse with a large family, and where not only is reading or writing out of the question, but there is mental deficiency as well, we give the patient a thermometer, tell him to put it in his mouth for five minutes every night for three days and then return with it. In this way we obtain the maximum temperature. We repeat this during the tuberculin test, thus detecting a rise of temperature which with constitutional signs or symptoms will sometimes help to make a diagnosis.

We use Koch's Old Tuberculin which in 2 cc. bottles costs about fifty cents. The date stamp be should looked at to see that it is not over two months old. One half per cent carbolic acid solution is used as the diluent. A 1 cc. glass pipette graduated into tenths of a cubic centimeter is needed. Beakers, large and small, a 10 cc. and a 100 cc. graduate, glass-stoppered bottles in which to keep the solutions and a 2 cc. glass subcutaneous syringe must be provided, as well as a sterilizer in which all this glassware is boiled prior to use. The accurate measurement of small amounts of fluid with the pipette is a rather delicate matter and should be practised with water before trying with the tuberculin. Some of the crude tuberculin is drawn up into the pipette and .1 cc. 100 mgm. is allowed to drop into 10 cc. of the carbolic solution. This forms solution No. 1, each cubic centimeter of which contains 10 mgm. of tuberculin. After shaking thoroughly, 1 cc. of this is mixed with 9 cc. of the carbolic, thus forming Solution, No. 2, each cubic centimeter of which contains 1 mgm. of tuberculin. This is shaken and again 1 cc. is mixed with 9 cc. of the carbolic, forming Solution No. 3, of which each cubic centimeter equals .1 mgm. These three solutions, if tuberculin is used at all extensively, should be labelled and kept on hand. A solution will last two weeks if kept in a cool, dark place, but it is better if possible to make it up fresh each time.

With the solution ready, a spot on the patient's back, usually under one shoulder blade, is cleaned with alcohol or corrosive, and the initial dose of .1 mgm. injected. This can either be 1 cc. of Solution No. 3, or, if the syringe allows of sufficient accuracy, .1 cc. of Solution No. 2. Many advise beginning with a dose of $\frac{1}{2}$ mgm. or with 1 mgm. and consider that .1 mgm. is too small. We have seen reactions in strong, afebrile, adult patients after an injection of $\frac{1}{2}$ mgm. of tuberculin which were far too prostating to be safe to the patient or advantageous to the physician. It takes very little longer and may save the patient much inconvenience to find out whether or not he will react to the smaller dose before trying the larger. One of our most violent reactions was after an initial dose of .1 mgm.

The question at once arises as to what constitutes a reaction. This is a point which every physician must settle for himself. It is impossible to lay down any exact rules. Each patient presents a problem a little different from any other, and what may be called a reaction in one case might not necessarily be called so in another. In a general way we observe the following principles: It is far better to err on the side of strictness. In any case mere rise in temperature is not considered nearly so significant as general constitutional symptoms or changes in the local signs. A local reaction at the supposed site of the process is most important of all. If before the injection there had been merely harsh breathing at one apex, and after giving tuberculin there was found fine crackles or moist râles with increased cough and sputum, the reaction would be called a positive one even without marked febrile changes. To detect these physical signs the patient must report at least three days after the injection is made, and if possible earlier. The fine moist

râles, the slight friction rub of a quiescent pleurisy, the development of cog-wheel breathing in a suspected area are all of the greatest value. To detect these changes, however, the physician must be sure of his powers of observation and have a careful record of the exact condition in the lungs before the tuberculin was given.

After an injection of .1 mgm. of tuberculin a rise in temperature of one half a degree above the maximum that the patient has had before, together with some constitutional symptoms such as headache, nausea, malaise, pains in the joints, etc., would probably be called a positive reaction. The patient must be carefully questioned and cross-questioned without making too leading inquiries before a decision is reached. If there has been only a slight rise in temperature without any constitutional symptoms after waiting at least three days, the next dose of 1 mgm. should be given. After this dose a reaction should show a rise in temperature of at least one degree above the previous maximum, with definite constitutional or local changes. After a 5 or 10 mgm. dose, no temperature under 100° is significant and the constitutional symptoms should be marked. It must be borne in mind at all times that no absolute rules can be laid down. Neurotic and impressionable patients will present more active symptoms than others and results in such patients should be discounted. For this reason it is better not to tell any patient what he may expect in the way of a reaction, and thus avoid any element of suggestion as far as possible. With children, unless they or their parents are of an unusual degree of intelligence, one must depend more on the temperature and changes in the pulmonary condition than on subjective symptoms. Each case must be looked at from every possible point of view and no decision made one way or the other until every factor has been considered. This general routine in giving tuberculin often has to be modified to suit the individual case. If after the second injection of 1 mgm. there are a few uncertain indications of its effect, but not enough to be called a reaction, it is well to make the next dose 5 mgm. instead of 10. If after this a reaction occurs, it is just as positive and far less violent than that after the full dose of 10 mgm.

Lowenstein and Kauffman[1] describe a very interesting German method of using tuberculin for diagnosis. They do not increase the dose where no reaction follows a small one, but, beginning with the dose of .2 mgm. repeat this four times at three-day intervals before increasing the dose to 2, 5 and 10 mgm. They maintain that the small repeated doses of tuberculin sensitize the patient so that as definite a reaction is obtained as with a much larger dose, but with less violent symptoms. Out of 300 cases, the great majority reacted to the third injection of .2 mgm. We at present have not had any experience with this method in diagnosis, but in the future we hope to have something to say on the comparison of the two methods when we have had opportunity of thoroughly contrasting them.

[1] Zeitschrift. für Tub. u. Heilstattenwesen, Bd. x, Heft 1, 1906.

The various signs and symptoms which constitute reaction can be grouped under these heads:

(1) Fever.
(2) Local signs.
(3) Constitutional symptoms.

(1) This has been considered above.

(2) Local signs are at the site of the tuberculous process, usually, of course, in the lungs. If there is a local reaction, increased cough and sputum will show that a loosening of the process has taken place, and on examination over the suspected area crackles and râles may be heard where there were none before. In one of our cases after repeated negative sputum examinations, tubercle bacilli were found in a small mass of mucus coughed up shortly after ½ mgm. of tuberculin had been given. If there is a process which can be seen or felt, such as lupus, glands or infected joints, a reaction will be plainly evident in the increased heat, redness and swelling of the part. If, however, the process is well shut off and cicatrized, little if any effect will be noticeable. At the point of injection we may get marked redness, swelling and tenderness after the dose of tuberculin giving the reaction. This occurs sometimes in a few hours and slowly subsides without any evidence of local infection and is a diagnostic sign as pointed out by Trudeau.

(3) The constitutional symptoms may be: Gastro-intestinal, — loss of appetite, nausea, vomiting, or diarrhea; cardiac, — dyspnea, palpitation, and faintness; nervous, — headache, pains in the joints, general malaise, "grippy sensations"; vasomotor, — sweating, chills, chilly feelings, erythemata, and other eruptions usually of a very transient nature.

Our cases in which tuberculin has been given in diagnosis have shown us its greatest value. In no case have we had any serious or untoward results. No old process has been permanently lighted up; no hemorrhages have followed, and even in the few cases where very severe reactions have taken place, the resulting improvement and tonic action of the tuberculin have more than justified its use.

Case XXXI is the only one we have had which gave an absolutely negative tuberculin test and yet afterwards by pathological examination was proved to be tuberculosis. The reason for this is not clear.

These cases, 29 positive, 9 negative, were given tuberculin while at one of our classes; in only rare instances did any patient stop work altogether or go to bed during the test. No case was admitted to the hospital for the tuberculin test.

An analysis of these cases gives some interesting facts. Out of 28 positive reactions, a local reaction in the lungs was found only 5 times; this is doubtless to be explained by the fact that tuberculin was given only twice a week, — Mondays and Thursdays, — and in consequence a local reaction might have taken place and disappeared before the doctor at the hospital had a chance to examine the lungs. The reaction came on in

POSITIVE CASES.

Number of Case.	Age.	Previous Diagnosis.	Symptoms and History. Why Tuberculin was given.	Physical Examination. General Condition.
I	21	Pleurisy. Ph.?	Slight pyrexia; loss of weight. Pain in chest. Cough.	Few fine râles. Slight friction left apex.
II	22	Ph.?	Pain in left chest.	Harsh respiration. Occasional râle left apex.
III	35	Cirrhosis of liver. Ph.?	Vomiting of blood some months ago.	Large liver and spleen. Rare râle in chest.
IV	27	Ph.?	Cough six months. Loss 10 lb. weight. Pain in chest.	Dullness. Occasional fine râle, bronchial right apex.
V	22	Ph.?	Dry cough. Slight pain in chest.	Dullness. Rare râle, right apex.
VI	30	Ph.?	Cough. Once raised some bloody sputum.	Dullness. Rare râle at left apex behind.
VII	23	Ph.?	Night sweats. Slight cough. Stomach trouble.	Few râles and increased signs at left apex.
VIII	35	Ph.?	Pain in chest. Cough. Slight expectoration.	Signs at left apex increased. Rare râle.
IX	16	Ph.?	Cough. Expectoration. Night sweats two weeks.	Râles in left axilla, + signs at right apex.
X	35	Ph.?	Loss of weight. Night sweats. Dry cough three weeks.	Few fine râles right axilla.
XI	21	Ph.?	Cough and expectoration. Loss of weight.	Increased signs left apex.
XII	28	Asthma.	Cough and expectoration.	Increased signs at both apices.
XIII	32	Ph.?	Slight cough and expectoration.	Occasional dry râle left scapula.
XIV	16	Ph.?	Slight dry cough.	Dullness. Br. ves. br. occasional râle at left apex.
XV	40	Debility.	Run down. Little dry cough.	Occasional râle at left apex.
XVI	26	Ph.?	Cough two months, with loss of weight.	Occasional crackle at both apices.
XVII	18	Ph.?	Cough with bloody sputum three months.	Occasional dry râle at right apex.
XVIII	27	Debility. Ph.?	Cough. Loss of weight.	Right apex "suspicious."
XIX	17	Anemia. Sore throat.	Loss of weight. Debility.	Occasional crackle at left base.
XX	13	Ph.?	Cough. Debility.	Harsh breathing right apex.

Positive Cases.

Reaction.	Dosage.	Local Signs.	Constitutional Symptoms.	Febrile Reaction. 1st day.	2d day.	3d day.	Disposal of Case.
+	0.1 mg.	No. increase.	Headache, nausea, diarrhea, grippy sensations.	9 98	98		Went to country.
	1 mg.			1 99.8	99		
				5 100.6	98.4		
+	0.1 mg.	Râles increased at	Headache, nausea, pain in chest.	9 98.6	100.4	99	Tuberculosis class.
	1 mg.	left apex.		1 99	101.2	98	
				5 99.3	101	99	
+	0.1 mg.	No increase.	Headache, nausea, vomiting, back swollen and tender. Grippy.	9 98.6			Lost track of.
	1 mg.			1 99			
				5 102			
+	0.1 mg.	Not obtained.	Felt mean, headache, back sore.	9 98.6	102	98	Tuberculosis class.
	1 mg.			1 99	102.2	100	
	5 mg.			5 103.2	103	99	
+	0.1 mg.	No increase.	Headache, nausea, diarrhea.	9	Marked use		Tuberculosis class.
	1 mg.			1	to 101.°		
	10 mg.			5			
+	1 mg.	No increase.	Headache, nausea, redness and swelling at point of injection.	9 98.6	98.6		Went to country.
	1 mg.			1 98.6	98.6		
				5 98	98.6		
				12 102			
+	0.1 mg.	Râles increased over	Headache, nausea, grippy pain in back.	9 98.6	99.1		Lost track of.
	1 mg.	left apex.		1 98.6	98.6		
	5 mg.			5 100	98.6		
	10 mg.						
+	0.1 mg.	No increase.	Headache, nausea, grippy.	9 98	98.6		Rutland.
	1 mg.			1 99.6	98.6		
	5 mg.			5 102	98.6		
	0.1 mg.		Headache, back sore, nauseated.	9 98.6	99.2	99.4	Rutland.
+	1 mg.	No increase.		1 99.8	100.3	99	
	5 mg.			5 99.6	100.1	99	
+	0.1 mg.	Signs increased.	Headache, nausea, diarrhea, loss of appetite.	9 98.6	99		Lost track of.
	1 mg.			1 99	98		
	5 mg.			5 99.6	100	98	
+	0.1 mg.		Headache, nausea, grippy sensations.	9 98.6	100	98	Day camp.
	1 mg.	Not increased.		1 98.6	102	98	
	10 mg.			5 99	101.1	98	
+			Headache, nausea, grippy.	9 98.6	100	98.6	Rutland.
	0.1 mg.	Not increased.		1 99	99	99	
	1 mg.			5 100	100	99	
+	0.1 mg.		Nausea, headache, grippy.	9 98.6	99.1	99.	Went to country.
	1 mg.	Not increased.		1 98.6	. . .	99.2	
	10 mg.			5 98	103.2	99	
+	0.1 mg.		Grippy, increased cough, throat dry.	9 99	99		Tuberculosis class.
	1 mg.	Not increased.		1 102	98		
	10 mg.			5 101	98		
+	0.1 mg.	Not increased.	Nauseated, headache, grippy sensations.	9 98.6	99		Tuberculosis class.
	1 mg.			1 98.6	98		
				5 101	98.6		
+	0.1 mg.	Râles more numer-	Only slight constitutional symptoms.	9	99.2		Tubercle bacilli in sputum; 2 mo. later.
	1 mg.	ous.		1			
				5 99.4	99		
+	1 mg.	Moist râles right apex.	Very slight symptoms.	9 99.5 six hours after injection.			Rutland. Tubercle bacilli in sputum next day.
				1			
				5			
+	2 mg.		Headache, hot chills.	Reached 101° after 10 mg.			Under observation.
	5 mg.						
	10 mg.	Not increased.					
+	0.1 mg.	Not increased.	Joint pains, nausea, vomiting, chills, headache, "grippy."	8			Tuberculosis class. Under observation.
	1 mg.			12 98	99.2		
				4 98	99		
				8 100	99		
+	0.1 mg.		Slight headache.	9 99.6	100.4		Tuberculosis class. Under observation.
	1 mg.	Not increased.		1 99.4	100.2		
				5 99.4	100		

POSITIVE CASES.

Number of Case.	Age.	Previous Diagnosis.	Symptoms and History. Why Tuberculin was given.	Physical Examination. General Condition.
XXI	18	Ph.?	An occasional hemorrhage during past year.	"Suspicious" right apex.
XXII	12	Tachycardia. Ph.	Debility. Pallor.	Increased signs at right apex.
XXIII	31	Ph.?	Cough for eight months, with bloody sputum.	Signs at left apex increased.
XXIV	16	Ph.?	Pale. Slight evening temperature.	Nothing abnormal.
XXV	14	"Run down."	Slight evening temperature. Sister died of tuberculosis.	Nothing abnormal.
XXVI	13	Ph.?	Cough. Debility.	Nothing abnormal.
XXVII	16	Ph.?	Debility. Cough. Brother has tuberculosis.	Harsh breathing at right apex.
XXVIII	29	Ph.?	Cough with sputum for a long time.	Signs at right apex increased.

NEGATIVE CASES.

Number of Case.	Age.	Previous Diagnosis.	Symptoms and History. Why Tuberculin was Given.	Physical Examination. General Condition.
XXIX	35	Ph.?	Cough and sputum for eight weeks.	Dullness and occasional râle, right apex.
XXX	33	Tb. Pharynx.	Sore throat four months.	Ulcer in throat. Occasional râle right apex.
XXXI	12	Chronic Influenza. Ph.?	Cough and sputum. Loss of weight.	Dullness; br. breath. Râles at both apices.
XXXII	14	Chronic Influenza. Ph.?	Cough and sputum. Loss of weight. Pyrexia.	Dullness and + sign at both apices.
XXXIII	36	Ph.?	Pain in chest. Cough.	Slight dullness at left apex.
XXXIV	47	Ph.?	Slight cough for two years. Some bloody sputum.	Suspicious right apex.
XXXV	16	Anemia.	Pale. Debility.	Nothing abnormal.
XXXVI	26	Ph.?	Father died of tuberculosis. Cough. Loss of weight.	Occasional râle left apex and left base.
XXXVII	21	Ph.?	Cough. Pain in chest.	Nothing abnormal.

Positive Cases.

Reaction.	Dosage.	Local Signs.	Constitutional Symptoms.	Febrile Reaction. 1st day.	2d day.	3d day.	Disposal of Case.
+	0.1 mg.		Chilly. Headache. Felt sick.	9		100	
	1 mg.	Occasional râle right		1		100.4	
	5 mg.	apex.		5	99.3	100.4	Rutland.
	10 mg.						
+	0.1 mg.		Feverish; pains all over. Dizzy.	9	98.4		
	1 mg.	Occasional râle right	Headache.	1	100.2		Class, with *marked* improvement.
	5 mg.	apex.		5	100		
+	0.1 mg.	Slight increase.	Headache, nausea, could not	9	99.8		
	1 mg.		sleep.	1	99.8		Class. Is going to Rutland.
				5	99.8		
+	0.1 mg.	Not increased.	Headache, nausea, vomiting.	9	100	100	
	1 mg.			1	99.9	98	Rutland.
				5	99.4	98	
+	0.1 mg.		Nausea, vomiting, grippy sensa-	9	99.4	98	
	1 mg.	Not increased.	tions.	1	100.2	98	Rutland.
				5	100	98	
+	0.1 mg.	Not increased.	Nausea, vomiting, grippy chills.				Rutland.
	1 mg.		Nausea, vomiting, chilly head-				
	0.1 mg.		ache.	9		100	
+	1 mg.	Not increased.		12	100		Day camp.
	5 mg.			4			
				8	102.4		
+	0.1 mg.		Herpes, nausea, vomiting, chills,	12	98		
	1 mg.	Not increased.	pains all over.	4	99.9		Tuberculosis class.
	10 mg.			9	102.6		
				12	102.9		

Negative Cases.

Reaction.	Dosage.	Local Signs.	Constitutional Symptoms.	Febrile Reaction.	Disposal of Case.
0	0.1 mg.	Not increased.	None.	None.	Reassured.
0	1 mg.				
	10 mg.				
0	1 mg.		None.	None.	Proved to be tuberculosis of throat.
	10 mg.	Not increased.			
0	0.1 mg.		None.	None.	Class, with marked improvement.
	1 mg.				
	10 mg.	Not increased.			
0	0.1 mg.		None.	None.	Did not improve.
	1 mg.				
	10 mg.	Not increased.			
0	0.1 mg.		None.	None.	Tuberculosis class.
	1 mg.				
	10 mg.	Not increased.			
0	7 mg.		None.	T. 99.4 after 10 mgm.	Reassured.
	10 mg.	Not increased.			
0	0.1 mg.		Slight headache.	T. 99.1 after 5 mgm.	Hygiene class.
	1 mg.				
	5 mg.	Not increased.			
0	0.1 mg.		None.	None.	Hygiene class.
	1 mg.				
	5 mg.	Not increased.			
0	0.1 mg.	Not increased.	None.	Reached 99 once.	Reassured.
	1 mg.				
	10 mg.				

from six to twelve hours, rarely eighteen hours after the injection, and lasted twelve to eighteen hours, according to its severity. In no case was it suggested to the patient what he or she might expect in the way of a reaction; the constitutional symptoms were elicited by careful questioning, avoiding all leading inquiries. In 14 of the cases out of the 28, 50%, a definite reaction was obtained after the second dose of 1 mgm. of tuberculin which goes to confirm the statement made above that a dose of 5 or 8 mgm. is often quite unnecessary and, if given as an initial dose, is in many instances very dangerous.

The proper disposal of poor patients who react to tuberculin is not by any means an easy matter. While we are convinced that these are the patients who, if left untrained, are later to become openly tuberculous, it is often very hard to persuade them that there is urgent present need of strenuous measures. If the intelligence of the patient warrants it, in some cases we carefully explain the situation, tell the patient what he must do and keep him under observation in a class for a period of months until he seems to be in perfectly good condition again. All patients are expected to report once a month after they have left the class. We try to get into Rutland, the State Sanatorium for consumptives, those who have no facilities for carrying on home treatment. On their return they report at the class meetings once a month. Of our cases, 9 went to Rutland, 10 were admitted to classes, 3 were lost track of, and the remainder were disposed of as was found best. In an examination of Paris school children, Grancher found 15% to be in what he terms the "pre-tubercular stage." There is no reason to believe that American schools, at least in the city, would make a better showing. It is among this class that the tuberculin reaction in addition to other means of diagnosis is of great value. A few months' treatment at this stage may save many of these from becoming consumptives later on.

In conclusion then we believe:

(1) That tuberculin is an agent of great value in the early diagnosis of tuberculosis.

(2) That it should be used only as a last resort after all other means of making a diagnosis are exhausted.

(3) That it should be used only in carefully selected cases as specified above.

(4) That it should be given by men properly trained and qualified to do this work.

(5) That used in selected cases in the initial dose of not over .1 mgm., it is not in any way dangerous.

(6) That it is perfectly practicable to use tuberculin to advantage and to get good and trustworthy results in an out-patient department among ambulatory patients, but it would be far better to have beds in the hospital for this purpose.

(7) That it is much easier to get good results and to give tuberculin properly if the patients are handled in groups or classes.

(8) That if a patient has a history and signs that lead one to suspect tuberculosis and in addition to this reacts to tuberculin, he should be treated as any other early case of consumption is treated, and furthermore the exact state of affairs should be explained to the patient or to his friends.

TECHNIQUE OF SUBMUCOUS RESECTION OF NASAL SEPTUM.*

BY G. H. POWERS, JR., M.D., BOSTON.

THE purport of this paper is to present to you the technique of the submucous operation as done in the Massachusetts General Hospital Throat Clinic.

Indications. — The primary indication for this operation is nasal obstruction, partial or complete. In cases where there is not sufficient deviation to produce *per se* obstruction to nasal respiration and yet the breathing space is materially encroached upon by the above condition and an hypertrophied lower turbinate, the tendency at the present time is to correct the faulty septum first. The turbinate may later be trimmed that it may more perfectly conform to the resultant change in the size of the affected nasal cavity.

The age of the patient must be taken into consideration. If the cause of deviations of the septum nasi lies, in a great measure, in developmental anomalies of the facial bones (a generally accepted theory), it would seem justifiable to defer corrective measures until the parts in question have attained their full growth, or until about the time of puberty. In cases of obstruction sufficient to cause annoying symptoms, this consideration would naturally be overlooked. Question of operation on the deviation of traumatic origin is not influenced by this contra-indication. The existence of any of the acute infectious diseases, secondary syphilis, or active local tubercular processes are absolute contra-indications. Decision to operate upon a hemophiliac should be guardedly reached.

Anesthesia. — The anesthesia most in use in this clinic is cocaine hydrochlorate 4% to 10% in solution with equal parts adrenaline chloride 1–1000. Pledgets of cotton are dipped into this solution and rubbed over the mucous surface to be cocainized. The patient will suffer less inconvenience if a hearty meal is eaten a short time before operation.

Preparation. — Very little preparation for the operation is necessary. The face may be thoroughly washed, the surrounding parts scrubbed with soap and water, and the usual aseptic precautions taken. A mask of several layers of gauze with a central opening for the nose will be found very convenient for both patient and operator. This mask is held in place by two strips of tape attached to the inner surface and tied around the head, one at the level of the forehead, the other passing just below the tip of the nose.

Position. — This is purely a matter of preference some operators being accustomed to

* Read at a meeting of the New England Otological and Laryngological Society, March 16, 1906.

operating upon patients in the recumbent or semi-recumbent position, while others prefer to have the patient sit upright in a straight-backed chair with a headrest.

Instruments. — The necessary instruments are: applicators, probe, specula (ordinary and medium Killian), knife, elevators (Freer and Jansen), Ballenger knife, biting forceps (Freer, Gruenwald, Jansen), chisel, gouge, mallet, hook-needle with sutures, scissors, angular forceps.

Operation. — The single anterior incision is used, the cut being made as far anterior as practical. This incision is occasionally modified to meet the requirements in different cases by a horizontal cut along the base of the septum, and by an extension of the original incision across the floor of the nose, the object being in each instance to afford readier accessibility to the operative field in cases complicated by spurs and basal protuberances.

The incision passes through mucosa and perichondrium and is, in the average case, from 1.5 to 2 cm. long. An elevator is now employed to dissect perichondrium and mucosa over as great an area as indicated. Freer's elevator will be found most useful in starting the dissection, the larger instrument of Jansen being used for the remainder, as with it there is less likelihood of injuring soft tissue. The cartilage is now incised in the line of original incision, care being taken not to perforate the opposite perichondrium and mucous membrane. The latter are now elevated in the same manner and to the same extent as above.

The medium Killian speculum is now inserted, the blades opening against the two layers of perichondrium, having between them the cartilaginous septum.

The removal of the requisite amount of cartilage is now accomplished with the Ballenger knife, punch or gouge, the former being preferred whenever practical. According to the advice of Menzel[1] a bridge of cartilage above from 1 to 1.5 cm. in width should always be left for support to the integument in preserving the external contour of the nose. In using the Ballenger knife, the first stroke is made upwards and backwards, the downstroke following along the synchondrosis of the cartilage with the ethmoid plate and the vomer, the final direction being along the lower border of the quadrangular cartilage. The excised portion of cartilage is readily removed through the anterior opening with a pair of forceps.

In case of basal protuberances, chisel gouge or biting forceps may be employed for their removal. For deviations of the bony septum the biting forceps of Jansen, Gruenwald and Freer are the most serviceable instruments. In removing portions of the ethmoid plate and vomer, the support afforded the nasal bones must always be borne in mind, and while we do not know just what proportion of this structure may with impunity be removed, it seems safe to remove one half. Future experiment may justify us in removing more than this, but at present the tendency is to allow at least one half of the bony septum to remain intact. The usual location for spurs in the posterior portion of the septum is along the border of the vomer. Such ridges are readily removed with a gouge, chisel, or biting forceps. When the gouge and chisel are employed great care must be observed in tapping with the mallet not to exert sufficient force to fracture the vomer.

Having removed the obstructing portion of the septum, the field of operation must be carefully inspected and probed in order to detect loose fragments of bone and cartilage which have been overlooked. Their removal is essential to insure a smooth surface of the mucosa and perhaps primary union.

Coaptation of the edges of the wound may be maintained by sutures or by packing. Sutures are inserted with the hook needle of Jansen, holding the loose flap of soft tissue with forceps, the needle passing through mucosa and perichondrium not less than one sixteenth of an inch from the free border and again through the anterior mucosa and perichondrium which have been left undisturbed. Silk, silkworm gut or horsehair may be used for suture material. A pair of forceps will be necessary in tying the suture.

The nose is now packed, usually with cargile membrane wrapped around a tampon of absorbent cotton. Strips of sterile gauze or plugs of cotton may be used for this purpose. The object of packing is two-fold: (*a*) to retain the layers of perichondrium in apposition and (*b*) to prevent secondary hemorrhage and the filling up of the operative field with blood. It is necessary to lightly pack the side opposite to that operated upon for the same reasons, though in this instance a lesser amount of packing is necessary, as it is possible to attain the desired result and allow at the same time for breathing space. A few strips of narrow gauze placed between the lower turbinate and septum will suffice, and if it does not reach to the floor of the nose will not obstruct the breathing. The medium Killian speculum should be used to protect the operative wound during the process of packing.

The after-treatment is very simple, consisting merely, in uncomplicated cases, in removing the packing at the end of twenty-four hours and keeping the nasal cavity clean. Aristol powder is usually insufflated for the first two days in order to reduce as much as possible post-operative hypersecretion which is very apt to follow when packing is omitted. Sutures as in other locations are removed in from three to five days. For any subsequent swelling Argyrol 10% to 15% or Protargol 4% proves very efficient. Primary union insures recovery in three to five days, a longer after-treatment resulting from granulations forming in the space left by imperfect coaptation of edges of the wound, or other complication.

The result of a successful resection is sufficient and equal breathing space in both nasal cavities,

[1] See White on Resection of Nasal Septum. Bost. Med. and Surg. Jour.

in so far as the septum is concerned. The untoward results are:

(*a*) Permanent perforation. This may be due to accidental removal of a portion of one or both layers of perichondrium and mucosa, or to subsequent sloughing from infection, etc. Sloughing has been known to follow the application of 1–1000 adrenalin chloride when the nose has been packed with saturated pledgets before operation.

(*b*) Hematoma with resultant fibrous tissue formation or subsequent abscess formation between the perichondrial layers.

(*c*) External deformity. Depression following too extensive removal of the bony septum or possibly in those cases in which no bridge of cartilage is left superiorly as previously mentioned.

VOCAL NODULES IN CHILDREN.*

BY A. COOLIDGE, JR., M.D., BOSTON.

I BRIEFLY report this case, not because it is unusual, but because similar cases occur not very infrequently, and are often overlooked. The larynx in children is not always easy to see, and the hoarseness is ascribed to inflammatory conditions, adenoids, or some other similar trouble, resulting in a wrong prognosis or unnecessary treatment.

A girl, ten years of age, was brought to the Out-Patient clinic on account of hoarseness of some years' duration. It was first noticed five years ago, after she had acquired a habit of speaking in a loud voice on account of the deafness of a companion. At about this time her adenoids were removed, but without changing the character of her voice. This hoarseness varies much on different days, and even at different times on the same day, but the voice has at its best a slightly harsh sound. This harsh or cloudy character of the voice is noticeable in the speaking voice even more than in the singing voice. These are practically all the symptoms. On examination nothing essentially pathological is to be found except two pearly white nodules one on the border of each vocal cord between the anterior and middle thirds, a typical picture of so-called singer's nodes, or vocal nodule.

It is not my purpose to say anything about the nomenclature, etiology, pathology, or treatment of the nodules as seen in the adult, for an account of which I need only refer to F. I. Knight,[1] Chiari,[2] C. H. Knight,[3] Miller,[4] Cordes,[5] and especially to a discussion on the subject at the International Medical Congress of 1900 in the section of Laryngology.

In the description of singer's nodes in our textbooks, and in papers on the subject, their occurrence in children is often not mentioned, and it is implied that they are found almost exclusively in adult singers. On the other hand in the discussion mentioned above, Chiari says that they are not uncommon in children; Garel and Bernoud from a study of 144 cases conclude that they are very frequent in children. C. H. Knight quotes one of Murray's cases as only seven years of age.[6]

In my experience vocal nodules are not infrequently seen in children, and they may appear as early as four or five years of age. The symptoms vary from slight huskiness to distinct hoarseness of the voice, varying at different times as the size of the nodules vary, becoming worse with fatigue, excessive use of the voice and with colds or other local inflammation.

The etiology is undoubtedly similar to that in adults, — a faulty use of the voice, except that, whereas in adults it is frequently due to an abuse of the singing voice, in children it is probably caused by constant shouting and loud talking. If we listen to some children at play, it is surprising that their vocal cords stand the strain as well as they do. As in the case of adults, nodes are an infrequent result of abuse, but when they once appear they tend to persist. In children they get little chance for rest, and are themselves a source of irritation. They may be due to enlargement of glandular tissue, similar to the enlargement of the tonsillar ring, disappearing with the involution of this structure.

The diagnosis is easy if the vocal cords can be seen. The nodes are generally bilateral, and situated at about the junction of the anterior and middle thirds of the cords. They appear as small white excrescences on the free edge of the cords, exactly opposite each other. As the straight line of the cords is broken by these projections, their proper apposition in phonation is interfered with, with a resulting lack of clearness in the tone. If the larynx is inflamed or strained the nodules may become temporarily larger, with resulting increase of hoarseness.

Of the prognosis, I cannot speak with any degree of certainty. The nodules often persist for years, but I am inclined to believe that they often disappear during adolescence, especially in boys at the time of the change of voice. At this period the larynx grows, and the local conditions change, so rapidly that it is very probable that these local points of thickening disappear in the process. I have certainly seen the nodes much more frequently in boys than in men.

For treatment, rest and the proper use of the voice are the essential points. Even if the nodes do not entirely disappear, they become less prominent and the voice is improved. Rest of the voice with many children is not easy to enforce. I doubt whether anything is accomplished by local applications. Removal of the nodes, which may be indicated in an adult, is much less frequently so in children; not only is it much more difficult to do without danger of injury to the cord, but as there is a hope of the disappearance of the nodes in adolescence, it is well to wait until after this period before undertaking it.

* Read at a meeting of the New England Otological and Laryngological Society, March 16, 1906.

[1] New York Med. Jour., Dec. 1, 1894.
[2] Arch. für Laryngol., xi, 415.
[3] Laryngoscope, November, 1901.
[4] *Ibid.*, November, 1902.
[5] Arch. für Laryngol., xiv, 215.

A SCHOOL of malingering has been discovered in Rome in the course of inquiries made by insurance offices in regard to claims for injuries said to be the result of accident.—*American Medicine.*

[6] *Loc. cit.*

PROPHYLAXIS OF POST-OPERATIVE DIPHTHERIA.*

BY HARRY A. BARNES, M.D., BOSTON.

In November of last year a fatal case of diphtheria following an operation for tonsils and adenoids in the Out-Patient Department of the Massachusetts General Hospital suggested an investigation of the prophylaxis of post-operative diphtheria.† Cultures from all tonsil and adenoid cases were decided upon, with a view to establishing the desirability of making such cultures a routine of hospital procedure.‡ As the results obtained are quite in accord with the published results of other investigators, I shall give no detailed account of them, but include them in a general consideration of the subject.

That the Klebs-Loeffler bacillus may be present in the upper respiratory tract of many persons showing no signs of clinical diphtheria is a fact long ago established by many observers. From the prophylactic standpoint this fact presents two points of especial interest. First, the frequency with which the bacilli occur and the conditions governing the frequency; second, the virulence of such bacilli, and the conditions governing the virulence.

I. The frequency varies markedly according to the conditions of life and exposure to contagion. Graham Smith [10] reported a series of 362 cultures taken from selected individuals giving no history of direct or indirect exposure. Of these, 198 were poor people of the type usually seen in our large hospital clinics. No positive cultures were found. He also reported that of 1,149 cultures from non-selected healthy individuals, only three (.26%) of the positives could not be accounted for by the history of previous exposure.

Denny [3] obtained only one positive culture out of a total of 235 (.43%) taken from school children in Brookline, living in good hygienic surroundings and not previously exposed to contagion. In this one positive, the bacilli were so few that a pure culture could not be obtained.

On the other hand, Corbett [2] found the bacilli in every member of a family of five persons, one of whom had a clinical nasal diphtheria.

Between these extremes all percentages have been reported, and direct or indirect exposure seems to be the determining factor in the percentage. In well persons, taken at random during a time when no specially severe epidemic is present, the number of positives is between 1% and 3%. In groups of individuals, such as are found in schools and asylums, where recent outbreaks of diphtheria have occurred, the number of positives is always high. I cite a few of the reported results in the order of the percentage of positives found.

The committee of the Massachusetts Association of Boards of Health [6] reported 1% positive cultures from Boston school children; 1.5% from Lowell mill operatives.

Kober [5] reported 15 positives from 600 healthy school children (2.5%).

The results at the Massachusetts General Hospital come next in the order of percentages. Cultures were taken from both nose and throat in 191 consecutive cases, coming to the hospital for operation on tonsils and adenoid. Five were positive (2.6%). Of these, 3 were from both nose and throat, 1 from the nose only and 1 from the throat only.

Denny [3] reported 22 positives out of a total of 200 cultures from a school in which 4 cases of diphtheria had recently occurred (11%).

Graham Smith [10] reported 54 positives out of a total of 519 cultures taken during an epidemic (10.4%).

Kober [5] reported 15 positives from 128 general contacts (11.7%).

Berry and Washbourn [1] reported 17 positives from 142 girls in a school in which there had been several cases of diphtheria (11.9%).

Goadby [4] reported 190 positives from a school of 800 children in which 31 cases of diphtheria had previously occurred (34.1%).

Park and Beebe [7] reported 24 positives from 48 children in 14 infected families (50%).

Spirig [8] reported 6 positives from 2 families of 4 and 6 persons respectively, living in a house where there was a case of diphtheria (60%).

Higher percentages have been reported, but the results here quoted are sufficient to show the progressive increase of the number of positive cultures with the degree and duration of contact.

II. *The virulence.* — Positive cultures from healthy individuals giving no history of contact are seldom virulent. The combined results of Smith and several other observers show that of a total of 1,511 cultures taken from noncontacts, only 2 were virulent (.13%).

The Committee of the Massachusetts Association of Boards of Health [6] reported 17% of the positive cultures from well people virulent (.34% of all such cultures). When, however, we examine the reports of cultures taken from recent contacts, we found the percentage of virulent cultures much larger. Park and Beebe [7] found that of 6 positive cultures obtained from 55 children in a foundling hospital where diphtheria was endemic 5 were virulent. They also reported 8 virulent cultures from 32 positives taken from 330 persons, chiefly hospital patients. All but two of these virulent cultures were accounted for by recent contact. In Kober's [5] series of 600 children, 5 of 15 positive cultures were virulent. All of the five were from recent contacts.

In none of the positive cultures of my own series was the virulence tested by the usual method. In two cases, however, nonvirulence to the individual was shown, as positive cultures were obtained from both nose and throat at the time of operation. The history of these two cases is of sufficient interest to warrant a detailed account. The first patient was one of the first operated upon after routine cultures were begun,

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† This work was done through the courtesy of Dr. A. Coolidge, Jr., of the Massachusetts General Hospital.

‡ All of the cultures of this series were examined by Dr. Oscar Richardson, of the Massachusetts General Hospital.

and when no opportunity was given to take cultures before the morning of operation. Cultures from both throat and nose at that time were positive. After operation, the patient was under the care of a local physician in Malden. No signs of clinical diphtheria were observed, and one week after the operation both throat and nose were practically normal and gave negative cultures. There was no history of exposure.

The second case gave positive cultures from both throat and nose on the day before the one appointed for operation. Subsequent cultures proved positive on three successive days, after which two consecutive cultures were negative from both throat and nose. The patient was then admitted for operation, which was done one week after the last negative culture was taken. During this interval the patient had not been out of doors, and had not been exposed, so far as could be ascertained, to contagion. There were four other children in the family, among whom there were no sore throats and no nasal discharges. Yet swabs taken from the excised tonsillar and adenoid tissues were positive. Subsequent cultures from the throat were positive on three successive days after operation, and from the nose on four successive days. No signs nor symptoms of diphtheria appeared during an observation of ten days. This suggests the possibility of the crypts of the adenoid and tonsils being the source from which the bacilli were derived.

SUMMARY AND CONCLUSIONS.

The Klebs-Loeffler bacillus may be present in the nose or throat of from 1% to 3% of average healthy individuals. The bacilli are usually not virulent and have little or no clinical significance. In contacts, direct or indirect, they may be found in a much larger percentage of cases, and are likely to prove virulent.

Routine cultures in all cases before operations on the nose and throat are unnecessary, even in large hospital clinics. Cultures in individual cases are, however, essential. In the place of indiscriminate cultures, I would suggest that the following precautions be observed:

Careful examination of every patient at the time the appointment for operation is made, and the condition of the pharynx, nasopharynx and nasal cavities noted. A second examination of the patient on the day before operation, and strict inquiries as to the possibility of contact. If there are suspicious signs or symptoms, such as undue redness of the fauces or profuse discharge from the nose, especially if combined with any excoriation about the nostrils; or if there is a history of recent sore throats in the family, or diphtheria in the immediate neighborhood, or among the child's playmates, cultures should be taken. I would also suggest a final examination of the patient by the operator before etherization. If these measures are conscientiously carried out, I believe post-operative diphtheria, arising from bacilli present at the time of operation, will be reduced to a minimum.

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ESSENTIAL POINTS IN THE TECHNIQUE OF SUB-MUCOUS RESECTION OF THE NASAL SEPTUM.*

BY GEORGE L. TOBEY, JR., M.D., BOSTON.

THE technique of the operation for submucous resection of the nasal septum has developed with almost daily strides during the last two years. In practically every medical journal there is some new method or instrument for this or that. The man who has limited clinical material on which to perfect his own technique finds, on reading the journals, that the methods for doing a comparatively simple operation are legion, and unless he has had experience, he is unable to exercise proper discrimination.

The object of this paper is to discuss briefly certain points in the technique, the pros and cons of which one learns in doing a large number of these operations.

The first consideration is that of anesthesia.

The most efficacious method and the one most commonly used at this hospital and at the Massachusetts Eye and Ear Infirmary, is that of packing both sides of the nose with pledgets of cotton saturated in a mixture of equal parts of a 4% to 10% solution of cocaine and a one one-thousandth solution of adrenalin chloride for five to ten minutes followed by gentle rubbing with the same solution. By this method it is possible to cocainize all irregularities of the septum, the cotton conforming itself to such irregularities.

The anesthesia procured simply by rubbing the mucous membrane with a pledget of cotton, saturated with this solution, on a probe is thorough over all areas that are accessible. It will often be found, however, that it is practically impossible to reach portions of the mucous membrane immediately behind a sharp vertical ridge or a marked cartilaginous deviation obstructing the whole side of the nose and in contact with the turbinates.

In the use of the spray there is much more discomfort for the patient as the cocaine is blown into the pharynx and throat. If compressed air is used under a pressure of more than thirty pounds there is, as a rule, abrasion of the mucous membrane, which will be troublesome later, especially if the membrane is thin or adherent, in which case a slough is liable to occur.

A year ago several men advocated the use of a subperichondrial injection of a weak solution of cocaine and adrenalin to elevate and coincidently anesthetize the mucous membrane. This may succeed in a few very favorable cases, and then

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over the cartilage only, since the perichondrium is adherent at the junctions of the several parts of the septum. It will not work in cases where there has been previous trauma, owing to the adhesions between the cartilage and perichondrium. I tried this method in a series of seven apparently favorable cases. In two of these there was an almost unbearable reflex frontal headache, relieved immediately by puncture of the wheal. Practically no time is gained by this method.

Some advocate the use of cocaine crystals. I see no advantage in this over the 10% solution, and it is very expensive. As a rule a 4% solution is sufficient for an operation of sixty minutes. A 10% solution will be sufficient for two hours without renewal.

General anesthesia is advisable in children under twelve years of age. It is not necessary under any other conditions unless the patient so desires. There is, as a rule, much more hemorrhage owing to the vasomotor dilative action of ether, and unless ether is given by means of a tube there are frequent interruptions.

The use of the suprarenal dried extract is very expensive and the result does not warrant its use in preference to the 1-1000 solution of adrenalin chloride. A 1-5000 solution of adrenalin chloride is not sufficient in the majority of cases. There is no disadvantage in using a 1-1000 solution. Sloughs that have occurred were in my opinion due to trauma.

As to the position of the patient, the advantage of the upright position over the reclining or semi-reclining is obvious. In the former you are working on a horizontal plane and you are able to see the whole septum and floor of the nose without difficulty. If, on the other hand, the patient is reclining you will find that you have to work from one side, you have not a direct antero-posterior view of both sides of the septum, nor can you, without getting into a very uncomfortable position, see the lower posterior half of the septum. In this position if there is any hemorrhage it drops into the throat with consequent coughing *et cetera*.

While the reclining position is much more comfortable for the patient, it is most tiresome and awkward for the surgeon. Although it may seem advisable in some cases of nervous patients, I have never seen such a one who did not calm down when the actual operation was started.

Coming now to the question of the incision in the mucous membrane, I think you will find that the horizontal incision along the base of the septum is very seldom warranted. It may be necessary, however, if the septum is adherent to the lower turbinate. With the vertical incision on the convex side the most difficult dissection, namely, the nasal spur, is readily accessible. The disadvantage in making the incision on the concave side, is that you have to work at a very acute angle in dissecting the perichondrium from the convex side. In cases of sharp deflections and nasal spurs the vertical incision may be carried downward and outward, across the floor of the nose, to the anterior end of the lower turbinate. The mucous membrane is then dissected from the floor of the nose and upward on the septum to the sharp angle, the membrane being dissected from above to the same point. This method gives you more room and at the same time obviates the danger of perforation at the sharp angle of deflection. I have seen one case of marked thickening of the mucous membrane on the floor following this procedure. There have been no unfavorable results reported following the complete removal of the quadrilateral cartilage anteriorly.

The main point in starting the dissection is to be sure that your dissector is between the perichondrium and cartilage and not stripping the mucous membrane from the perichondrium. The operator when beginning submucous work finds his chief difficulty at this point. If the membrane does not strip readily, in the absence of cicatrices, you may be certain that you have not cut through the perichondrium.

There have been innumerable instruments devised for cutting through the cartilage. The knife edge has the disadvantage that, unless the operator has finished technique, he is liable to perforate the mucous membrane on the opposite side. The small olive tipped dissector devised by Freer is a most valuable instrument for this purpose. In using this instrument cartilage is cut through by using a vertical sawing motion in the line of the original incision through the mucous membrane; it goes through the cartilage very readily and pushes the mucous membranes before it.

The use of the punch in removing the cartilage is not necessary. If the punch is used it must be borne in mind that it is very easy to pinch the mucous membrane and so perforate.

The instrument best adapted to removing the cartilage is what is known as the Ballenger knife. In using this there is one very important point to bear in mind, namely, the incision should be started upward and backward to the ethmoid plate, then carried downward to vomer and then forward. To illustrate the danger of the reverse of this I will cite a case.

I started my incision backward along the base; in cutting upward the blade caught on a small bony projection. Slight leverage was applied to bring the blade upward and forward. The blade was suddenly freed sweeping upward and forward, removing the entire cartilaginous septum thus leaving no support below the nasal bones. The cartilage was removed before I discovered how much damage had been done; it was immediately replaced and fortunately did not necrose. There was no subsequent external deformity.

Another valuable instrument, especially adapted for the bony septum, is known as Jansen's biting forceps. In removing the bony septum you should never work unless your membranes are well separated with the speculum. The twisting motion advocated by several men is unsurgical because you are unable to see how much damage you are doing.

The bane of all septum work is the nasal spur. This must be entirely removed. The Jansen forceps and a chisel combined with a large amount of patience will accomplish this. A perforation in one membrane need cause no worry as it will heal very readily. The use of sutures obviates the retraction of the mucous membrane with the consequent slow granulation of the denuded area. Black horsehair sutures are preferable because they are easily found. The use of plain gauze packing will cause great discomfort, and, if there are denuded areas, a brisk hemorrhage on its removal. Cigarettes of cotton saturated with alboline are easily applied and removed without difficulty or very much discomfort. Cigarettes of cotton wrapped in cargile membrane are very easily removed and never cause hemorrhage.

One point which the surgeon oftentimes forgets, with subsequent suffering for the patient during the next twenty-four hours, is the fact that when he is packing the nose is cocainized and adrenalized, with consequent shrinkage of all erectile tissue. The action of the drugs gradually passes with subsequent engorgement of the tissues and as a result tremendous pressure is brought to bear. Any one who has ever had packing placed in his nose under these conditions will sympathize with the patient. When this point is borne in mind and a very light packing is used, I have never seen the tremendous edema of the external nose and face which sometimes occurs.

Clinical Department.

A CASE OF FATAL MENINGITIS AFTER REMOVAL OF THE ANTERIOR END OF THE MIDDLE TURBINATE.*

BY HARRIS PEYTON MOSHER, M.D., BOSTON.

In the early fall I removed the anterior end of the left middle turbinate from a man of fifty who had a middle meatus full to overflowing with pus. I used a medium-sized ring punch. The patient had had unilateral nasal discharge of pus for some years. This alone gave discomfort. He never had much pain. The anterior end of the turbinate was removed in order to gain room for a systematic examination for the source of the pus. After operating I packed the region of the middle meatus with plain sterile gauze. The next morning the gauze was taken out and the antrum syringed. It was full of pus and foul. The man complained of severe frontal headache. He left the Out-Patient Department rational, but before he reached his home he became irrational. The next day, Sunday, a general practitioner took charge of the case. Late Monday afternoon the patient was admitted to the hospital as a house patient. He had all the symptoms of a septic meningitis. At six o'clock on this day, that is on the third day after the removal of the anterior end of the middle turbinate, I operated. I opened the frontal sinus; it was full of pus, but the cranial wall was intact. Then the antrum was widely opened through the canine fossa. After breaking down the upper part of the inner wall of the antrum the ethmoid region was curetted and the sphenoid opened. There was foul pus everywhere. The patient left the table in poor condition. He never regained consciousness and died within twenty-four hours. Every effort was made to get an autopsy without success.

The dread and the danger of such a happening as occurred in this case is constantly before the operator who does any serious work in the ethmoid region. A knowledge of nasal measurements to a certain extent lessens this dread and gives the operator an increased sense of security. If you will take the trouble, and you cannot satisfy your surgical conscience unless you do, to familiarize yourself with nasal operating measurements, you will find that they are much more uniform than you would suppose. On the table opposite there are a few specimens. Take the measured curette which is made for this purpose and lies beside them and see for yourself. If you ever have a case like this one I hope that you will have the comfort, such as it is, of feeling that you minimized as much as possible by such means as this the working in the dark which these cases necessitate.

What happened in this case? Of course the patient died as the result of the removal of the anterior end of the middle turbinate, but how did this come about? Was the cribriform plate broken or did the packing dam the pus back to such an extent that the infection was forced through the cribriform plate to the meninges?

I do not think that I broke through the cribriform plate because I was careful not to exceed the normal operating measurement of two and a quarter inches. The second question or supposition best explains to my mind the cause. I think that the packing walled back the pus and infected the meninges through the cribriform plate. If this is the fact the lesson to be drawn from this case is that it is dangerous to pack the nose after operations on the ethmoid labyrinth where there is pus in the middle meatus. After removing the anterior end of the middle turbinate I have been accustomed to pack the middle meatus for the first twenty-four hours in order to prevent bleeding. It must be borne in mind that the middle turbinate is but an offshoot of the ethmoidal labyrinth. It can, therefore, be removed with the snare or punch with but little bleeding. The snare will accomplish but little on the ethmoidal labyrinth proper. Here the punch or the curette is necessary. With either of these instruments considerable bleeding follows. If the patient can be put to bed or kept quiet there may be no need for packing, but if the patient has to stir about or has to take something of a journey in order to reach his home I think packing is required. Therefore, I have used it more or less as a routine. Naturally in the future I shall use it very carefully where there is pus in the nose, but I do not think that I shall go to the opposite extreme and never pack.

Would opening the cranial cavity have done any good in this case? Clinically the meningitis was general. In such cases the neurologists discourage operation. Operation offers hope only where the meningitis is localized and the point of

* Read at a meeting of the New England Otological and Laryngological Society, March 16, 1906.

infection can be found. Personally I wish that I had opened the cranial cavity. I might have found a frontal abscess, and if I had not found that but had found only a generalized meningitis the opening would have served for drainage. It is hard to believe that surgery will always hold its hands contentedly helpless even before generalized meningitis.

FATAL RESULT FROM INTRANASAL OPERATION.*

BY GEORGE L. TOBEY, JR., M.D., BOSTON.

Case: W. R. Male, fifty-eight years.

Children's diseases. Denies venereal disease.

During the last fifteen years he has had constant mucopurulent discharge from both anterior and posterior nares, and at intervals of from four to six months nasal polypi have been removed to relieve bilateral obstruction to breathing. Complete loss of sensation of smell for five years. During the last year there has been complete nasal obstruction, treatment having been neglected. When first seen his chief complaint was constant headache with sensation of compression at the base and forehead, loss of appetite and inability to sleep, with consequent neurasthenia.

Physical examination showed a man of medium height, poorly nourished and anemic. Chest negative. Both sides of nose filled with polypi and pus. The polypi presenting at the anterior nares. Nasopharynx filled with polypi protruding through the posterior nares. Naso-pharynx and pharynx bathed in muco pus.

On removing the polypi with snare it was found that there was a marked deviation of the cartilaginous septum, the septum being in contact with the left lower turbinate. Breathing space was obtained, on the right side, by removing a mass of polypoid tissue with snare and punch. Bleeding was insignificant. Four days later the middle turbinate on the right side was removed, the ethmoid cells opened with conchotome and curetted to os planum with Hajek's instruments.

Polypi could be seen protruding from the sphenoidal foramen. Anterior wall of sphenoid removed with punch. Cavity found to be filled with granulations and inspissated pus. Floor and inner wall lightly curetted. Few strips of iodoform gauze to sphenoid. Twenty-four hours later the packing was removed, and a few more polypi removed. Right antrum tapped and large amount of mucopurulent secretion washed out. One week later there were a few small polypi in the posterial ethmoid cells, which were removed with curette. The sphenoid was clean. It being impossible to reach the middle turbinate and sphenoid on the left side on account of the deflected septum, the cartilaginous and a portion of the bony septum were resected by the submucous method. Although the nose, on the side where the incision was made, was continually bathed in pus, there was complete healing in three to four days. Two weeks later the left middle turbinate was removed. The ethmoidal cells were found to be filled with granulations and pus. Cells curetted to os planum. Sphenoid opened as on the other side, and semi-solid cast of inspissated pus removed. Few strips of iodoform gauze to sphenoid. Bleeding insignificant. Six weeks later the right side of nose was clean. Practically no secretion in the antrum; the sphenoidal sinus was dry.

On the left side the same condition prevailed, with one exception. A little posterior to the nasofrontal duct and on the roof was a small mass of polypoid tissue bathed in pus. It was thought inadvisable to curette these, consequently a Grunwald punch was used to remove a portion of the mass. Twenty-four hours later he developed symptoms of a septic meningitis and four days later died from that disease. No autopsy.

* Read at a meeting of the New England Otological and Laryngological Society, March 16, 1906.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON,
AND
HARVEY P. TOWLE, M.D., BOSTON.

THE INFLUENCE OF LIGHT ON THE SKIN.

During the last ten years much interest has been taken in this subject, stimulated, without doubt, by the introduction of x-ray and Finsen therapeutics. As long ago as July, 1897, a paper on this subject was read by R. L. Bowles at the May meeting of the Dermatological Association of Great Britain and Ireland.

This paper offered much interest on account of the personal experiments of the writer on sunlight and snow-light in the Alps. By his experiments he showed that heat in itself is not the cause of sunburn, and that there is strong evidence for believing that it is caused by the action of the violet or ultra-violet rays of light. It was also shown that although these ultra-violet rays are very strong at high altitudes, altitude alone does not explain sunburn, as one may be unburned on rocks at 10,000 feet and yet be affected on descending to a glacier three or four thousand feet lower down. He considers it has been shown that rays from the electric light produce much the same results as sun's rays reflected from the snow, and that bronzing of the skin and browning of the wooden chalets are probably produced by rays reflected from the snow; also that freckles stop the penetration of these chemical rays through the skin; also that various pigments, chiefly those containing red and yellow, stop or alter reflected rays and prevent the pathological changes.

Immediately after the publication of Professor Röntgen's discovery, Dr. Bowles claimed for the x-rays as then produced an affiliation to those of light, and predicted that they would be found to affect the tissues in a way similar to the violet rays of light. This was found to be the case, as is shown by the numerous cases of x-ray burns, and he suggested that a form of energy which can produce such serious results on the skin may have a serious toxic effect. He declared that he would not be disposed, until more is known, to risk the effects of so powerful a form of energy on the cells of his own brain. Bowles is much impressed with the fact that reflected light burns much more rapidly than direct.[1]

Ehrmann's experiments on the action of light in hydroa estivalis are interesting.[2] This affection, first described by Bazin under the name of hydroa vacciniforme, begins, as is well known,

[1] Brit. Jour. Derm., July, 1897.
[2] Arch. für Derm. und Syph., 1905.

by the eruption of vesicles on the parts exposed to the sun in people who evidently possess some extraordinary susceptibility. The affection as a rule appears in the first warm days of the spring and disappears in the autumn. There is some resemblance in the vesicle to that of smallpox, and the resulting pits may resemble those of that affection very closely.

Ehrmann's patient was a man of 31, whose affection began in childhood and had covered both hands and face year after year. At present it was becoming less pronounced. The experiments were made upon the skin of the patient by means of the Finsen light and the insertion of various lenses and objects between the tube and the skin.

He showed that the eruption could be produced in this patient by rays filtered through blue glass, as well as by the direct rays of the sun. On the other hand, the rays that passed through a red medium, whether a glass plate or a layer of fluid, produced no effect on the skin, although fewer heat rays were absorbed and the temperature was much higher. The long wave rays of the spectrum, and also the greater part of the heat rays, are absorbed by the blue medium, and only the short wave, chemically active rays pass through, and these alone give rise to the appearance on the skin. Hence he concludes that hydroa estivalis represents an idiosyncrasy of the skin to the actinic light rays, and is allied to epidermolysis bullosa, which represents a susceptibility to mechanical irritation, with the only difference that in the latter the susceptibility does not diminish with advancing years.

At the meeting of the British Medical Association in Toronto, in August, 1906, Dr. Hyde read a paper on the influence of light hunger in the production of psoriasis.[3] After commenting upon the frequent occurrence of this affection and its frequent beginning in childhood, he comes to the subject which was the object of his paper, namely, to show that there are facts which point to the conclusion that psoriasis is an expression of the resentment of the skin against long continued exclusion of light from the surface. He alludes to a paper recently published by him, in which he attempted to show that cancer of the skin was due in certain people to the influence of actinic rays of light, a proposition just the reverse of that here set forth.

His reasons for regarding the disease as caused or influenced by the exclusion of light are summed up in five propositions:

Proposition 1. — It is a well known fact that psoriasis is a disease that never affects the lower animals, whether wild or domesticated, and he considers this is owing to the reason that the skin of such animals is very rarely screened from the light by any covering.

Proposition 2. — If this affection is caused or largely influenced by the exclusion of light, it is clear that the number of persons whose skin is thus sensitive is relatively small. It is necessary to suppose a special sensitiveness of the skin in a certain small group of subjects. Ninety-nine per cent of human beings clothe themselves with garments which partly exclude sunlight without suffering from this affection.

Proposition 3. — If the theory under discussion be true, psoriasis ought to be most prevalent at those seasons of the year and in those countries in which sunlight is least abundant, and statistics bear out the truth of this proposition. It is always most prevalent and most severe in winter, when the sun's rays are less powerful and shorter in duration, and when also much thicker clothing is worn. Thus psoriasis is much more prevalent in the north than in the south, and is very rare in the negro race.

Proposition 4. — The localization of the disease should be largely determined by the opportunity of the part to exposure to the light. The scalp is a region where psoriasis is very common and very active, chiefly on the vertex, the front of the scalp and the occipital surface. This area he believes to be the part most covered by the hat, during the time spent out of doors. He considers also that the band of scaliness which is often present at the edge of the scalp upon the forehead also strengthens this proposition. The fact that psoriasis affects bald heads only exceptionally is emphasized, and also that at Christ's Hospital in London, where 50,000 children have been admitted since its foundation, there are few cases of psoriasis, and that the scalp has not been affected in any case except when there have been lesions on the body. These boys are required to keep the head uncovered when out of doors.

It is a well known fact that the face is less often affected than most other regions,—a further proof of the truth of this proposition. The hands which are exposed to light more frequently than most other parts are not frequently affected by psoriasis.

Proposition 5. — The favorable effect of x-rays and Finsen light in the treatment of psoriasis is also considered as an important aid to this argument. The treatment by sunlight has not as yet been sufficiently investigated. Removal to the South during the winter months often acts favorably on the disease. The writer mentions the case of a young man who had suffered from psoriasis for years, who spent several weeks in a place where he was free from observation, and where during the day he could rest in the sun completely nude. The result was a complete disappearance of the affection.

[3] Brit. Med. Jour., Oct. 6, 1906.

THE ETIOLOGY AND PATHOLOGY OF URTICARIA.

Stelwagon's statement[4] that "the disease [urticaria] is an angioneurosis, the lesions being primarily, at least, due to vasomotor disturbance which may be of diverse origin, but doubtless most commonly toxinic," expresses the theory which is commonly accepted to-day. Upon study of this theory it becomes obvious that our knowledge of the disease is not yet complete. Therefore as it is true that our treatment of a disease becomes more rational as our knowledge of its etiology and pathology increases several recent

[4] Stelwagon: Diseases of the Skin, 4th edition, p. 170.

articles on various conditions found in urticaria have a very practical interest.

Kreibich's experiments, made first in only one case [5] and repeated later on a more extensive scale in a series of five cases,[6] seem to support the angioneurotic theory. The conclusions drawn would be much more convincing if the experiments had not been made upon hysterical patients on whom, throughout the investigations, urticarial lesions were continually developing spontaneously. Török indeed would reject the entire series on the ground that nowhere in his text has Kreibich proved that he could distinguish the lesions supposedly due to artificial measures from those which were constantly developing in the ordinary course of the disease in these same patients.[7] Another point which Török makes is that it is impossible to rule out simulation, as the patients were under no control from the time the experiments were made in the clinic one day until they reported on the next. Kreibich thought that his experiments demonstrated that urticaria could be artificially produced not only directly but also by way of the reflexes. He reports that in his patients he was able to produce an urticarial lesion locally by pricking the skin with a pin or by rubbing in some irritating substance. More significant than this, however, he considers the fact that in certain experiments the production of wheals was not limited to the site of the irritation and did not cease with its withdrawal. Wheals continued to appear for from fifteen minutes to three hours after the original lesion had disappeared, not only at the site of the irritation but also on distant nonirritated parts. It is claimed that these results show that urticaria is a vasomotor disease in which the lesions are the result of an outpouring of serum from vessels whose walls have been intensely irritated by nervous influences. When the eruption is general and not confined to the region irritated it is explained that the irritation has been transmitted upward to the central nervous system by the nerve immediately concerned and that in the central nervous system the impulse "leaks over" and thus affects other segments.

Török [8] is a very vigorous opponent of the vasomotor theory of urticaria in general and of Kreibich's views in particular. He believes that it is not a vasomotor disease but on the contrary a true inflammation of the skin brought about by the direct local action on the vessel walls of certain substances circulating in the blood. He bases this theory upon Phillipson's experiments and upon his own studies. Phillipson [9] succeeded in producing urticaria both by the local application on the skin and by injection into the skin itself of such substances as atropine, morphine, peptone, etc. He lays the greatest stress, however, upon the fact that he could produce urticarial lesions upon the abdomens of dogs even after the cervical sympathetic had been cut, after the cervical ganglia had been removed and after the entire abdominal chain had been dissected out. He believes that the results of these last experiments prove beyond question that the vasomotor system has nothing whatever to do with the production of urticaria. Török carried his experiments on from this point. Accepting this theory of the direct local action on the vessel walls of certain substances circulating in the blood he endeavored to find out just which substances exerted this action. He also wished to determine whether there was in the normal organism a substance which could produce an urticarial edema of the skin by its local action; whether substances, such as ptomaines, toxins and antitoxins which are produced under pathological conditions, have such action; and whether there are drugs which can produce an urticaria by their local action on the vessels of the skin. He divided his results into three groups, substances producing no effect, those producing only a slight wheal and those producing a typical urticarial lesion. The composition of this last group is interesting as it included such substances as pepsin, trypsin, carbolic acid, phenacetin, antipyrin, morphine and bouillon containing the toxin of the staphylococcus aureus. His conclusions are that urticaria is an inflammatory disease because it shows all the classical symptoms of inflammation, "*en petit*," redness, pain, heat and swelling and because it shows histologically the same appearances as those found in experimental inflammation. It is not due to vasomotor disturbance but to such substances as have been indicated, or to substances like them, which, arriving by way of the circulation, act locally on the vessel walls.

Török's views are supported by Morichau-Beauchant's investigations. The latter puts forth a theory of the mechanism of the production of the urticarial lesions which it will be seen is strikingly like that of Török. His explanation of the process[10] rests upon the statement that certain substances, such as toxic-albumin, shellfish muscle, mollusks, microbic toxins, peptones and impure albumins are known to act as lymphagogues. From this he goes on to say that whenever there is abnormal microbic fermentation in the stomach or intestines defective elaboration results, in consequence of which peptones and toxic-albumins are formed. These products of imperfect elaboration then get into the circulation and are carried to the terminal vessels, *i. e.*, those of the skin. There they lodge and act directly upon the vessel walls. The resultant wheal is not due to a passive outpouring of serum but is the result of an active secretion from the endothelial cells caused by the direct action of these lymphagogues upon them. The production of the wheal is therefore an active process and may be entirely independent of all vasomotor influence. The situation of the wheal is determined by secondary causes (cold, trauma, etc.) which intervene to localize the edema at the points of least resistance.

Although the theories given above subsequently

[5] Kreibich: Wien. klin. Wochenschr., 1904, xvii, 147.
[6] *Ibid.* Die Angioneurosen, 1906.
[7] Török: Rev. des Mal. Cut., Syph. et Ven., 1906, v, 363, 1907, vi, 2
[8] *Ibid.* Pest. Med.-chir., Presse, xxxix, 768, 785.
[9] Phillipson: Arch. für Derm. und Syph., 1900, li.
[10] Morichau-Beauchant, Ann. de Derm. et Syph., 1906, 4 s., vii, 22.

diverge widely yet they begin at the same point, the gastro-intestinal tract. For this reason Hirshberg's study of the gastro intestinal contents in urticaria [11] is important although the series is small. Hirshberg first washed out the stomach and then gave the patient an Ewald-Boas test breakfast. One hour later the stomach contents were removed either by expression or by aspiration. Analysis showed in the majority a hyperacidity which was most marked in the chronic or persistent cases. This suggests that a more extended study of the gastric contents in urticaria would yield valuable results.

Paramore's careful study of the blood [12] has added one more fact to our knowledge of urticaria, for it showed that in certain types of the disease the blood is deficient in the amount of calcium which it contains and is slow to coagulate. Paramore states that these conditions do not obtain in all cases of urticaria but only in certain forms which he terms decalcification urticarias. The conclusions drawn from the examinations of the blood were confirmed clinically by the fact that he found that a cure followed in these decalcification urticarias if, as shown by continued examinations, the calcium content was increased and the coagulation time accelerated. This was accomplished by the administration of calcium chloride by mouth in drachm doses. It is interesting to note in this connection that he states that magnesium and milk, which have long been used in the treatment of the disease, act like calcium in increasing the calcium content and the power of coagulation. Clinically he found that sour fruit, unripe apples and sour wine tended to produce the disease by decreasing the calcium content and the coagulability. Paramore used Wright's method to determine the amount of calcium and the coagulation time. To measure the calcium, mixtures of freshly drawn blood were made with solutions of different strengths of ammonium oxalate, five cc. of blood was drawn into each pipette and mixed with one of the ammonium solutions. These mixtures were then allowed to stand for twenty-four hours. If the blood was completely decalcified, no clot formed and the corpuscles sank to the bottom. The incompletely decalcified mixtures clotted. A comparison of the pipettes thus showed at once which strength of ammonium oxalate solution just decalcified the blood. This gave the amount of calcium in terms of ammonium oxalate. The coagulation time was found by exposing a column of blood to a water bath at a temperature of 37° C. The tube was examined after thirty seconds and every fifteen seconds thereafter. The time required for the appearance of the first signs of fibrin was taken as the coagulation time. Although the absolute normal calcium content and coagulation time could not be given, Paramore adopted as his standard the known normal for non-milk drinkers, *i. e.*, a calcium content of one-one thousand five hundredth ammonium oxalate and a coagulation time of one minute and forty-five seconds.

[11] Hirshberg: Am. Med., 1906, 398.
[12] Paramore: Brit. Jour. Derm., 1906, xviii, 239.

It seems probable that each of these various observations expresses a part of the truth in regard to the conditions in urticaria, but further investigation is needed to determine what relation they bear to one another. The facts quoted suggest that while all cases of urticaria may have their starting point in certain conditions in the gastro-intestinal tract the process by which the eruption is produced is not always the same. In one case the wheal may be the result of a vasomotor disturbance; in another of certain substances, acting directly upon the vessels; in other cases it may be what Wright calls a serous hemorrhage due to changes in the blood, or it may be due to various combinations of these conditions. These are questions still unsettled.

Reports of Societies.

THE NEW ENGLAND OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

MEETING held at the Massachusetts General Hospital, March 16, 1906.

The president, DR. F. L. JACK, in the chair.

DR. H. A. BARNES read a paper on

PROPHYLAXIS OF POST-OPERATIVE DIPHTHERIA.

DISCUSSION.[1]

DR. J. W. FARLOW: In a day or two I am to operate on a girl, nine years of age, who has had nine attacks of diphtheria. The tonsils have large crypts in which are large, cheesy masses. Cultures have been taken in these cases of diphtheria and they have been positive.

In making the examination the other day, I found the child was in normal condition, but I think that in view of what I have heard to-night, I will have the tonsils examined and see if they contain the Klebs-Loeffler bacillus. The child has practically been incapacitated for a number of years.

NOTE. Two days later I operated on the child under ether, removing both tonsils and a fair sized adenoid. Cultures from the right tonsil showed the presence of the diphtheria bacillus, while the cultures from the left tonsil and the adenoid were negative.

DR. A. COOLIDGE, JR.: By this series of cases Dr. Barnes shows that it is not necessary to take cultures before every operation, although it is better to take many cultures than to have a fatal case. I take it that one reason that these bacilli are found in a certain number of healthy cases, is due to the fact the child has an immunity in some way, and of course a child having immunity is protected. If our conclusions from this series of cases show that it is unnecessary to take a routine culture, we should always give careful directions to whoever has charge of the child, in case it shows any signs of being sick after the operation, to report it at once, on account of the possibility of its having diphtheria. Also, no case should be operated upon without a previous culture, if there is a nasal discharge or rise of temperature.

I should like to express my thanks to Dr. Barnes for the work he has done and the time he has spent in following these cases, and taking the great number of cultures. The conclusions he has arrived at are of great value.

THE PRESIDENT: We are very much indebted to Dr. Barnes for the work he has done in preparing a paper of this kind.

[1] Page 705.

Dr. H. P. Mosher reported a case of

FATAL MENINGITIS AFTER THE REMOVAL OF THE ANTERIOR END OF THE MIDDLE TURBINATE.[2]

Dr. G. L. Tobey reported a case of

FATAL RESULTS FROM INTRANASAL OPERATION.[3]

DISCUSSION.

Dr. F. E. Kittredge, Nashua: I have had a similar case. My patient had severe frontal headache with some rise of temperature. I amputated the anterior part of the middle turbinate, and passed a probe into the frontal sinus with difficulty. Upon withdrawing probe a few drops of pus appeared. Inside of twelve hours the man developed symptoms of meningitis, and though I did an external frontal sinus operation immediately, freeing a large amount of pus, he died within twenty-four hours.

Dr. E. E. Foster, Fall River: I would like to add a somewhat similar case: A female, sixty-four years of age, who had had at several different times during the last thirty years of her life, polypi removed from both nasal cavities, without anything having been done for the sinusitis which was the causing factor.

I first saw her three weeks before she died. Both nasal cavities were completely filled with polypi and pus. She had signs and symptoms of meningitis.

On account of age and very poor constitutional condition, radical procedure did not seem advisable. I removed the polypi and carefully curetted the necrotic anterior ethmoidal area. No packing was used. Nose was douched several times a day with warm normal salt solution. Improvement was reported to me for about a week when I was again called on account of return of previous symptoms. I found a few small polypi and some pus.

Following the second removal of polypi, without curetting, there was a slight improvement, but at the end of a week or ten days all symptoms became more severe, with death following in a few days. An autopsy could not be obtained.

This case was without doubt meningitis from a chronic purulent sinusitis. Good nasal drainage seemed to relieve the symptoms for a time. No packing or powder was used. It was evident that without the removal of the polypi, and the establishment of good nasal drainage, death would have occurred much earlier. I am sure in this case that extension to the cranial cavity had occurred prior to any surgical undertaking.

Dr. F. C. Cobb: I think we all owe a debt to the gentlemen who have described these cases. If medical literature reported its unsuccessful cases in detail and with the accuracy with which the successful ones are described, our advancement would be much more rapid.

The President: I think they are coming out.

I have had very little experience with the intranasal operation in these cases. I am quite satisfied with the results in five cases of Killian's operation.

I feel, after listening to the various reports of fatal cases of internal operations, that the Killian method, or the external operation, is the one to select for these cases.

We are told that packing is one of the dangers in the internal operation. The Killian operation is free from this danger. The scar is the only objection, so far as I know, and the scar in my cases has proved to be a very small matter, hardly more than a red line a few days after the operation, gradually fading away until in a short time it is hardly more noticeable than a wrinkle. I am very strongly in favor of the external operation in most cases.

[2] Page 708. [3] Page 709.

Dr. G. H. Powers, Jr., read a paper on

TECHNIQUE OF SUBMUCOUS RESECTION.[4]

Dr. G. L. Tobey, Jr., read a paper on

ESSENTIAL POINTS IN THE TECHNIQUE OF SUBMUCOUS RESECTION OF THE NASAL SEPTUM.[5]

DISCUSSION.

Dr. F. B. Sprague, Providence: I am very much interested in these papers and it seems to me I have nothing especial to add except a little personal experience.

In making the incision I have always made it on the left side of the septum, because it is handiest to my right hand, regardless of the position of the deflection, and I find it is just as easy to cut into either the convex or concave side. I think the point Dr. Emerson has made in regard to the incision is very valuable; I have done it in several operations.

Instead of suturing the mucous membrane I have used ordinary linen paper, sterilized, and cut out in a little patch and placed right over the incision, pulled the mucous membrane into place, and then packed against it. In that way there is no adhesion to the packing and the wound heals by primary union, and it is very much easier than suturing. I have used this paper patch for many years, in all forms of septum surgery, in removing ridges and spurs. After removing these excrescences I place this paper patch along the raw surface, covering it entirely and it allows me to pack it and remove the packing without any pain to the patient, and without tearing open the blood vessels and getting blood when the packing is changed.

In regard to instruments, the greatest difficulty is to find instruments that are small enough and strong enough to get into the nose and do any work. Freer's forceps are very large and bungling. A pair of forceps devised by Foster, of Denver, Colo., is the best one I have ever seen.

The packing I have left in two or three days, and then removed it and replaced it, in order to be sure of having a good position, prevent hematoma, and keeping things in a cleanly state.

I have been somewhat opposed to doing septum operations on children under twelve or fourteen years of age, but I have done one on a child of eight, where the obstruction was so great it seemed as though something must be done, and I had a very good result.

Dr. L. E. White: The papers were so complete that I do not feel as though there is very much to be said.

I use weak solutions of cocaine. When the deflection is anterior, as it frequently is, I inject one eighth of one per cent. of cocaine. If it is within the nose I I simply pack the nose with a one per cent. solution, with good results.

The anterior incision, of course, can be used if there is a moderate deflection in the cartilage with not much involvement of the vomer, and is the desirable one, because the wound heals by primary intention, and this saves a great deal of after-treatment. In trying to remove a large part of the vomer by this anterior incision, I have torn the flap, more or less, so I now make a horizontal incision in addition to the vertical, if the deflection is excessive.

In speaking of the age at which it can be done, as a rule I think it is wise to wait until the child is thirteen or fourteen years of age. I recently did a case of eight years, where there was great deformity in the nose (both sides being obstructed), and when it was necessary for the development of the child. The result in this case was everything that could be desired.

The sitting position is easier for the operator. There

[4] Page 702. [5] Page 706.

are some nervous patients who feel better lying down, and with a proper arrangement of the light and by having a pillow to move the head, not having the head perfectly flat on the operating table, it is then possible to see the lower part of the septum as well as the upper.

When patients get tired it is a great comfort for them to lie down, and they have often expressed their gratitude for the privilege. In some cases, namely, where we have adherent mucous membrane, or where some spur has been sawed off, it is a tedious operation, and in order to get a good result, it is necessary to take considerable pains in resecting the membranes. I use cylindrical plugs of absorbent cotten surrounded by cargile membrane. It makes the discomfort of removing the packing almost *nil*, the only annoyance then being from the pressure of the packing during the first twenty-four hours.

Dr. F. P. Emerson: This operation is comparatively of so recent date that I take it the practical difficulties we have to work out individually are the things that are of the most interest. Certainly Dr. Powers and Dr. Tobey have covered very completely the operation, and the after-treatment. The difficulty which I have found the hardest to overcome, was that of perforation, and it seems to me that one could control that very largely after one's technique was established by making an incision upon the convex side, through the mucous membrane and perichondrium before making an incision through the cartilage, and then after elevating this tissue, make the incision in the cartilage a little further back.

Another thing of practical value which I have found after going through the convex side, the mucous membrane, perichondrium and cartilage, is to introduce the speculum on the concave side, for then you can judge very accurately just how much pressure to put upon your elevator, and you can watch your perichondrium, as it is pushed away from the convex side. This may be done very accurately provided your elevator is in close contact with the cartilage.

The operation itself, it seems to me, has but very few contra-indications. It is practically painless and the time limit on that account is of very little consequence. I am sure that where there is a cartilaginous and a bony deflection I need from an hour to an hour and a half to do the operation well. It takes nearly half an hour to cocainize your field and prepare your instruments.

A very important thing, I think, is the strength of the cocaine solutions that are used. Personally I do not believe in using anything stronger than 4%. If you allow half an hour, 2% will anesthetize, in my experience, completely,

After the elevation of the mucous membrane and perichondrium the various methods of removing the cartilage, as described by Dr. Tobey, make that portion of the operation very rapid. The removal of the bony deflections is more difficult, and if it is a ridge well back on the vomer, it is a question of very careful work not to tear the mucous membrane on the proximal side, but as far as the functional results later go, if you have preserved your mucous membrane on the opposite side, the after-results are very good. The nose molds into place, all the redundant tissue has been removed and the patient is very comfortable, as soon as you are able to remove the packing. The two things which I have found of most discomfort to the patient, are the removal of the packing, and the cocainization of bony spurs. If it is a sharp spur, just upon the point of the spur is the most sensitive area.

The cargile paper, spoken of by Dr. Tobey, is very important in covering the packing as there is no pain in its removal, thus obviating a very unpleasant part of the treatment of the patient. In my experience, if the packing is removed after twenty-four hours, that is all the time that is necessary for it to remain in place. I think the vertical incision, in the majority of cases, is all that it is necessary to make. If this is made and the flap brought into position, the sutures can be dispensed with. As one works out his technique, he simplifies a great many of the measures, used at first, and the number of instruments which he employs grows less.

Dr. G. A. Webster: In regard to Dr. Ballenger's knife, it seems to me that it is necessary to separate the mucous membrane so you can see what you are doing, otherwise it is very easy to cut the membrane with the edge of the knife. I have found it very easy to get through the cartilage, by cutting through with a septal gouge, watching the mucous membrane on the side to which you are cutting; as soon as it gives a little finish the cut with a Freer's dissector. In this way you can easily get through the cartilage without perforating the mucous membrane of the other side.

Dr. D. C. Greene: About two years ago I began doing the submucous operation. The technique that I employed, at that time, was essentially that of Hajek, that is, using a very far anterior vertical incision, and taking out all the cartilage to the very anterior border, leaving simply a small ridge along the roof of the nose. I did quite a number of cases in this way and I think the greater proportion of them did not show any deformity, but I have had some cases where there was a distinct flattening of the tip. It seems to me that it is a bad thing, on general principles, to take out the whole of the cartilage anteriorly. It is better to leave a little column of cartilage to support the bridge of the nose.

The President: With experience, the time for performing the window-resection can be surprisingly lessened. In case of deflection anteriorly, eight or ten minutes may be sufficient. But why hurry?

Dr. A. Coolidge, Jr., read a paper on

VOCAL NODULES IN CHILDREN.[6]

DISCUSSION.

Dr. J. W. Farlow: I recently examined a boy, seven years old, who had a very hoarse voice. There were no nodules on the vocal cords, but the cords came together at the nodal point, the junction of the anterior and middle thirds. If the boy continues to shout and use his voice as he has been doing, I suppose that thickenings will soon appear at the nodal point. I advised rest of the voice and vocal lessons under direction of a teacher.

Such cases are probably more common than we think, because the larynx is often difficult to see in children, and attention is naturally directed to the more accessible parts of the nose and throat.

Dr. D. C. Greene: I have noticed this same occurrence in children that Dr. Coolidge has spoken of, in fact it was called to my attention first by him. I think it is much more common than is ordinarily recognized. I have seen several cases in the Children's Hospital and I took occasion, yesterday, to look up the records here. I found that during the last three years in twenty-one cases of singer's nodes, on our records, twelve occurred in children below the age of fourteen, and most at the ages of eight, nine and ten years.

One point in regard to the treatment. Theoretically, these nodes being caused by strain of the voice with excessive friction of the cords at the nodal point, the ideal way to do away with the condition would be to use a tone of voice that would produce the least amount of rubbing at that point. This object may be obtained by the practice of vocal exercises on the vowel *oo*, on which vowel the cords are more widely separated than in the use of any other vowels.

[6] Page 704.

Dr. Coolidge: I did not intend to go into the question of nodes in adults, but only in children. I am very glad that Dr. Greene has looked up the statistics; the cases are more frequent than I thought, although I have seen two cases in the last two months. I think that this subject is important largely from the fact that it is so frequently overlooked by the specialist. I have seen more than one case where an adenoid operation has been done for hoarseness due to this condition, without benefit.

Book Reviews.

The Nursling. The Feeding and Hygiene of Premature and Full-Term Infants. By Pierre Budin, Professor of Obstetrics, University of Paris; Director of the Clinique Tarnier; Member of the Academy of Medicine. Authorized translation by William J. Maloney, M.B., Ch.B., Fellow of the Obstetrical Society of Edinburgh; Ettles Scholar, Houldsworth Research Scholar, etc., with an introduction by Sir Alexander R. Simpson, M.D., LL.D., D.Sc., Emeritus Professor of Midwifery and Diseases of Women and Children, University of Edinburgh. Illustrated. London: The Caxton Publishing Co. New York: Imperial Publishing Co. 1907.

This most interesting book is a collection of Budin's lectures to his students and gives a very clear idea of his beliefs and methods.

He first takes up the care and feeding of weaklings, largely, of course, premature infants. He then considers breast and artificial feeding and concludes with a chapter on "The Consultations for Nurslings" and the "Gouttes de Lait." He favors breast-feeding very strongly and shows very clearly the advantages of human milk over that of other animals. We commend these chapters most strongly to those physicians and nurses who discourage breast-feeding and claim that modified cows' milk is as good or even better as an infant food than human milk. We cannot approve, however, of his methods of artificial feeding, and feel that in common with most foreigners he is far behind the times in this respect. The illustrations and tables are remarkably good and most enlightening. We are sure that every one who is interested in the care and feeding of infants will find this book not only most interesting but very instructive.

Lessons on Massage. By Margaret D. Palmer, formerly masseuse and manager of the Massage Department of the London Hospital, instructor of massage to the Nursing Staff of the London Hospital. Third edition. Illustrated. Pp. 272. New York: William Wood & Co. 1907.

This book has been a success as evidenced by the demand for a third edition. It is a straightforward, simple presentation of the principles of massage, excellently illustrated. This third edition has been thoroughly revised and several articles entirely rewritten and enlarged. Among these latter are the sections on flat foot and wry-neck.

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TYPHOID SPINE.

This affection has been variously considered a neurosis, a functional aberration, an inflammation, and as being the result of a chronic toxemia. Some observers believe it to be due only to one among these factors; it is probably the resultant of all of them.

It is easy to understand how the typhoid spine — or as MacRae[1] would probably more correctly term it, typhoid spondylitis — comes about. During several weeks the patient has been suffering from one of the most serious infections with which we have to deal. Its toxins have deranged well nigh every function and invaded nearly every tissue in the body. They have been particularly destructive of nerve force; and the nervous mechanism, which is the first to suffer from the toxic invasion, has become quite exhausted by the long strain. In perhaps no other acute disease is the convalescence so protracted; in no other has the patient's strength been so long depleted, his mentality so completely enervated. Quite naturally then may be expected the manifestations attending the typhoid spine, pain in the lumbar and sacral regions, especially on jarring or after a slight shock, tenderness on pressure, stiffness in the back, changes in reflexes and sensations, even wasting of the lower limbs, neurasthenia, hysteria, irritability, whining and crying by even strong men. Possibly such local symptoms as redness and swelling may appear, and in prolonged cases even kyphosis or lateral curvature.

There have been intestinal ulcerations during the disease and much scarring has followed upon reparative processes; so that, although there is

[1] MacRae (22): Typhoid Spine. Johns Hopkins Hosp. Bull., April, 1907.

no direct anatomical relation between the vertebræ and Peyer's patches, the lumbar and sacral symptoms referred to are logically akin to those in the same region which are familiar to the gynecologist. Those who hold the typhoid spine to be merely a functional affection do not recognize that gradations from functional aberrations to structural lesions are oftentimes extremely slight and really appreciable only by the microscope — and not always even then. Gibney who in 1889 first described the typhoid spine, believes it to be an inflammation of the parts holding together the bony vertebræ — the spinal ligaments, the periosteum and the intervertebral disks. MacRae has found, by the x-ray, bony changes in two cases, one of which was due to a paratyphoid organism. This is, of course, not conclusive evidence that such bony growths characterize the typhoid spine; but we may fairly assume that if the inflammation of the periosteum is sufficiently prolonged, exostoses will follow. The inflammatory process seems in no known case to have proceeded to suppuration; we would judge then that the typhoid spine is not directly due to the specific organisms, for such lesions nearly always suppurate. No deaths are recorded as following actually upon the typhoid spine, so that there have been no actual pathological findings. The differential diagnosis is from perinephritic abscess or Pott's disease, in both of which there is suppuration, and from arthritis deformans or spondylitis deformans. There should be no difficulty here, by reason of the history of recent typhoid fever. The prognosis is very good, and complete recovery is assured by rational though prolonged treatment.

HOUSING PROBLEMS.

IT is interesting to note that the International Congress for Improved Housing, having its headquarters at Brussels, has formed an American section. This congress seeks to interchange between countries records of successful remedial action. As the result of their deliberations legislation in European countries has been stimulated. Its eighth annual meeting will be held in London from the 5th to the 8th of August; there will then be considered such subjects as slum improvement and slum destruction, house building and managing, housing finance, taxation, the land question, town planning and building, building regulations and the transit question. Tours will also be made to the model villages and cities of England, such as the Garden City at Letchworth and the model village of Bournville.

Mr. Robert W. de Forest has been made president of the American section; Richard Watson Gilder (that most practical of poets) is the vice-president; and Dr. William H. Tolman the secretary. There are surely no three men who have worked more faithfully and more wisely to improve the tenements in which the very poor live; we may be sure their presence in the London meetings will arouse special interest in American housing problems.

Such men as these have realized full well that it is useless to talk about cutting down our enormous infant mortality, or to prevent dreadful infections — especially tuberculosis — unless we are ready to remove the factors upon which these conditions thrive. The Tenement House Commission, appointed some seven years ago, to investigate these structures in New York City led to the establishment of its Tenement House Department, with ample powers under the law. Mr. de Forest was the first commissioner, and with his able associates, among whom was Mr. Lawrence Veiller, a leading expert on housing reform in the United States, he immediately set about the task of improving the tenements in the most densely crowded region in the whole world. They achieved vast renovations, and although many landlords fought the department, many others gladly made the improvements required by modern sanitary principles, because they had the prescience to discern that these improvements were, in the end, bound "to pay." And by their humanitarian labors Mr. de Forest and his associates compelled a new standard, so that sensible architects and builders have, more than ever before, realized the desirability —and the necessity—of calling expert sanitarians into their counsels. It has been realized that we have in the United States an urban population of some twenty-six millions; and furthermore that during this generation and the next practically all the large towns in this country will have to be rebuilt, not to speak of those which will arise in regions now uninhabited.

Philanthropic people in this city, in New York, in Philadelphia, in Washington, and in other cities have made excellent use of their capital in the erection of "model tenements," in which laboring people are assured sanitary and clean housing condition, and it by no means detracts from their humane purposes that they have intelligently adopted and put into practice the motto, "philanthropy with four per cent." There can be no investment which could give greater satisfaction to the altruistic.

SCIENTISTS AT PLAY.

"A MAN," declared Dr. Johnson, "should pass a part of his time with the laughers"; and he would himself surely have been delighted could he have read Mr. Leonard Huxley's paper in a recent number of the *Cornhill Magazine* on "A Great Darwinian and His Friends," the venerable Sir Joseph Hooker, now in his ninetieth year, Darwin's closest friend and one of the survivors of the famous X Club, being referred to. There is in this paper to be had a very human and pleasing glimpse of great men at play.

This X Club was essentially a dinner club. The nine members who attended the first meeting in 1864 were T. A. Hirst, William Spottiswoode, Tyndall, Edward Frankland, Huxley, Sir Joseph Hooker, G. Busk, Lord Avebury and Herbert Spencer. "It has happened," said Huxley, "that these cronies had developed into bigwigs of various kinds, and therefore the club has incidentally — I might say accidentally — had a good deal of influence in the scientific world." It had, indeed, despite its amiable aimlessness, earned a decided reputation, all the greater, no doubt, because of its mysterious character. Huxley once overheard two members of the Athenæum: "I say, do you know anything about the X Club?" "Oh, I've heard of it." "What do they do?" "Well, they govern scientific affairs; and really, on the whole, they don't do it badly." Nevertheless, any outsider present at the meetings must surely have been shocked and pained at the sadly frivolous tone of the conversation. The observation of Herbert Spencer seems to have been lived up to: "It is a great mistake for adults, and especially for adults who work their brains much, to give up sports and games. The maxim on which I have acted is, Be a boy as long as you can."

Mr. Leonard Huxley deplores what he considers the popular misconception of the man of science as a morally shrivelled specialist who unwillingly and remorselessly sacrifices romance and adventure and human ties in the pursuit of cold science. The comparison of this misconception with the behavior of these famous clubmen is rather ludicrous. There were no rules, save the unwritten law not to have any. But skeleton minutes were kept, as for instance: "Talked politics, scandal, and the three classes of witnesses, liars, —— liars, and experts. At one time excursions were organized for the members and their wives, symbolized by the algebraic notation, "x's+yv's." The minutes stated that the "x's" of the outings were paid by the "x's."

Among the names suggested for this club were "The Blastodermic," that being the part of the ovum in which the rudiments of future organization first appear. Apparently "x" was eventually chosen because it stood for the unknown quantity, and therefore committed the club to nothing.

It may be that the members of the American Medical Association will visit Atlantic City next week somewhat in the spirit indicated by Mr. Leonard Huxley.

MEDICAL NOTES.

PLAGUE. — According to recent reports from India, plague is wide-spread, and an enormous number of deaths are occurring in certain regions. In one week in April there were 87,161 cases, with 75,472 deaths, an increase of 12,000 deaths over the number of the preceding week.

WOMEN NURSES IN THE NAVY. — Surgeon-General Rixey, of the United States Navy, has recently drawn attention to the somewhat extraordinary fact that the American Navy is without a single trained nurse. In time of illness a hospital steward and an apprentice are available, but this, it is maintained, is insufficient to meet the demands oftentimes and patients are necessarily deprived of proper nursing. A plan has been developed by means of which a corps of trained nurses may be organized for the navy, such as now exists in the army. Men will naturally be employed on board ship, but women will take charge of the nursing in the navy hospitals on shore. The surgeon-general is said to be seeking support for the furtherance of this plan.

PROFESSOR KILLIAN'S VISIT TO BOSTON. — Dr. Killian, professor of laryngology at the University of Freiburg i. B., widely known for an operation named after him, visited Boston last week as a part of an extended tour in the United States. He came as the guest of the American Laryngological, Rhinological and Otological Society, and was also entertained by the American Laryngological Society which recently met in Washington. He is expected to be present at the coming meeting of the American Medical Association. While in Boston he operated at the Massachusetts General Hospital, and demonstrated at the Harvard Medical School the technique of his procedure in disease of the frontal sinus.

DELEGATION FOR THE ADOPTION OF AN INTERNATIONAL AUXILIARY LANGUAGE. — The Delegation for the Adoption of an International Auxiliary Language comprises the representatives of more than two hundred and fifty learned societies and professional associations of all countries; it has also received the adherence of more than one thousand members of academies and of university faculties. Because of this two-fold support it proposes to proceed in the course of the year 1907 to the choice of the auxiliary language through the intermediation of a competent international authority. In order to give this decision the greatest practical effect the delegation now addresses a last and pressing appeal to all those who desire the adoption of a neutral language-medium for international relations of every sort, which will increase in number year by year.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, May 29, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 43, scarlatina 40, typhoid fever 6, measles 22, tuberculosis 36, smallpox 0.

The death-rate of the reported deaths for the week ending May 29, 1907, was 22.34.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, May 25, 1907, was 208, against 214 the corresponding week of last year, showing a decrease of 6 deaths and making the death-rate for the week 18.01. Of this number 111 were males and 97 were females; 202 were white and 6 colored; 134 were born in the United States, 66 in foreign countries and 8 unknown; 55 were of American parentage, 132 of foreign parentage and 21 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 40 cases and 5 deaths; scarlatina, 33 cases and 0 deaths; typhoid fever, 9 cases and 1 death; measles, 59 cases and 2 deaths; tuberculosis, 48 cases and 19 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 22, whooping cough 2, heart disease 27, bronchitis 3 and marasmus 7. There were 14 deaths from violent causes. The number of children who died under one year was 46; the number under five years 63. The number of persons who died over sixty years of age was 42. The deaths in public institutions were 68.

There were 15 cases and 13 deaths reported from cerebrospinal meningitis during the week.

A CENTENARIAN. — The death of Joseph O'Connell at the reputed age of one hundred and two years is reported from North Adams, Mass. He had been in this country upwards of sixty-five years, and until this spring was in good physical condition.

A LOVING CUP PRESENTED TO DR. WILLIAM L. RICHARDSON. — On the occasion of Dr. Richardson's last lecture to his class in obstetrics, which was the final lecture of the year, and also his last in his official relation with Harvard University, he was presented with a loving cup by his students, preceded by an appreciative speech from the president of the class.

GENERAL BARON KUROKI VISITS THE HARVARD MEDICAL SCHOOL. — On May 23, during General Kuroki's visit to Boston, he and his suite visited the new Harvard Medical School buildings, and were received by Dean William L. Richardson and others of the faculty, who showed the party about the buildings. General Kuroki is said to have been particularly interested in the skull and bar of the so-called "crowbar case" in the Warren Museum.

NEW YORK.

BEQUEST TO HOSPITAL. — By the will of the late Congressman, Norton P. Otis, of Westchester County, N. Y., $5,000 is bequeathed to St. John's Hospital, at Yonkers.

PUBLIC HEALTH DEFENCE LEAGUE. — The board of directors of the Public Health Defence League, which was organized as the result of the conference held at the Hudson Theatre, New York, in November last, has just issued a first report of progress, announcing the completion of the organization of the society under a charter granted by the State of New York. The objects of the league are: 1, To combat all forms of quackery and charlatanism; 2, to prevent food adulteration and drug substitution; 3, to prevent the sale of narcotics and alcohol disguised as patent medicines: 4, to prevent the circulation of indecent medical advertisements; 5, to advocate the establishment of a National Department of Health; 6, to carry on an educational campaign for the spreading of accurate knowledge concerning the public health and the inculcating of higher health ideals; 7, to protect the public health by assisting the constituted authorities in the enforcement of existing laws, and by urging the enactment of uniform legislation in all

the states on matters relating thereto; 8, to co-operate with other societies interested in any public health problem, and ultimately to effect a plan of union or co-operation of all organizations interested in the public health. The president of the league is Austen G. Fox, of New York, and among the medical members of the board of directors are the following New York physicians: Walter Lester Carr, president of the Medical Society of the County of New York, Thomas Darlington, president of the board of health, William M. Polk, Henry S. Stearns, Silas F. Hallock, Floyd M. Crandall, Frank Van Fleet, and Wendell C. Phillips. The league begins its existence with an enrollment of two thousand members, representing every state in the Union, and also some foreign countries. The board of directors desires to rapidly increase this enrollment very greatly, and to have flourishing branches in all the states, believing that the militant work of the league cannot be accomplished without the resources and influences that must come with an enormous membership. From time to time the board hopes to issue letters and bulletins chronicling the progress made in further enrollment and in carrying out the purposes of the league, and a pamphlet is now in press containing a record of the convictions of a large number of so-called medical advertisers in some of the New York newspapers. The headquarters of the league are in the United Charities Building, 105 East 22d Street, New York.

Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT, No. 13.
APRIL 1, 1907.

1. *RUEDIGER-RYDYGIER, L. R. *Dislocations of the Hip Joint.*
2. FERRATA, A. *Why Complex Hemolysins are Inactive in Salt-Free Solutions.*
3. *RAUENBUSCH, L. *Therapeutic Injections of Oxygen into the Knee Joint.*
4. KOZICZKOWSKY, E. *Turgo-Sphymography.*
5. *GALLI, G. *Hereditary Heart Disease.*
6. *HEYMANN, P. *On Hay Fever.*
7. *POSNER, C. *Congenital Stricture of the Urethra.*

1. A good clinical lecture on dislocations of the hip-joint, their symptoms, mechanism of production and reposition.

3. Injections of oxygen into the knee-joint have produced marked benefit in cases of chronic arthritis and tuberculosis reported by Rauenbusch. Effusions, if present, are first removed through a trocar, and then the joint is tightly filled with the gas, generated by means of Wollenberg's apparatus. The injections are repeated at intervals of one to three weeks. The chief effect seemed to be the abolition of pain and the consequent better motion in the joint. How oxygen produces this effect is not understood.

5. Galli divides hereditary heart disease into three groups. The first is Huchard's "aortism," in which there is a hereditary tendency to disease of the blood vessels (apoplexy, aneurysm, arteriosclerosis, etc.). This tendency is not manifested until late in life. The second class includes the rheumatic families in which the disposition to acquire rheumatism and endocarditis is shown early. The last, to which the name "myocardism" is applied, consists of cases in which a disposition to myocardial changes is apparently inherited. Galli describes a family in which the father died of some form of heart disease and all the four children showed evidences of myocarditis. Two died suddenly after rather long periods of cardiac insufficiency, and in one autopsy was performed. No lesion of the valves was found, only myocarditis. In a third child examination with the ortho-diascope showed a pear-shaped heart (*cœur en goutte*).

6. Heymann reports favorable results in 19 cases of hay fever from the use of thyreodin, administered for some time before the expected outbreak of the disease.

7. Posner discusses the question of congenital stricture of the urethra, which occurs either at the meatus or at the junction of the membranous and bulbous portions. In the latter situation there is normally a small valve-like projection. In a few cases this is more marked, constituting an impediment to the passage of urine. Symptoms of obstruction may be lacking for many years, as in the author's case. [W. T.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 15.
APRIL 11, 1907.

1. KLEBS, E. *Origin and Treatment of Pulmonary Tuberculosis.*
2. *VIERHUFF, W. *X-Rays in Diagnosis of Incipient Phthisis.*
3. *STRAUSS, H. *Digestive Gastrosuccorrhea.*
4. *FRIEDEMANN, U. *A Complex Hemolysin in the Pancreas.*
5. *KEUTHE, W. *The Functional Significance of the Leucocytes with Different Diets.*
6. BRATZ and LEUBUSCHER. *"Affektepilepsie."*
7. KOWALEWSKI, R. *Toxic Working of Cantharides on the Eye.*

2. Vierhuff claims that the x-ray discloses the existence of thickenings in the lung tissue before they will show auscultatory or percussory signs, and that when such signs are present it is an invaluable means of showing the extent of the process. He cites cases and gives radiograph illustrations.

3. Strauss claims priority in describing gastrosuccorrhea and says that Boas, in an article in *Deut. Med. Woch., No.* 4 (reviewed BOSTON MEDICAL AND SURGICAL JOURNAL, Feb. 21), does not give him credit. He agrees in general with Boas as to the symptoms and treatment of this condition. The hypersecretion only takes place after food and then may be excessive. But it is a true hypersecretion and not a hyperacidity. The symptoms are those of a nervous dyspepsia with emaciation. Motor insufficiency may or may not be present. The diagnosis is made by examination of the gastric contents after test breakfast. Treatment consists of nourishing diet, avoiding all substances which stimulate secretion, and a substitution of sugars and dextrins for starches.

4. Friedemann sums up his investigations on the pancreas as follows:

(1) The secretion from pancreatic fistulæ contains a lecithid, analogous to that in snake and bee poison.

(2) The alcohol extract of the pancreas gland contains a very complex hemolysin.

(3) The active substance of the pancreas behaves like an amboceptor and can be united to the blood corpuscles: it is different from the ordinary amboceptors through its high resistance to heat.

(4) Small amounts of the gland extract cause a complement inhibition. Hemolytic and inhibitory substances are identical.

(5) The hemolytic action is active against the blood corpuscles of similar animals (autohemolysin).

(6) The pancreas contains a paralyzing and a hemorrhagic poison, which is very similar in its action to rattlesnake poison.

5. Keuthe in his experiments on dogs finds that by albuminous and fatty nourishments a marked absolute and relative increase of the neutrophilic cells is produced in circulating blood, while the lymphocytes are relatively diminished. By carbohydrate diet the lymphocytes are relatively and absolutely increased. [L. G. M.]

APRIL 18, 1907.

1. *WASSERMANN, A. *Our Knowledge of Immunity and Its Relation to the Clinician.*
2. KOLLE, W. *Serum Therapy in Acute Infectious Diseases.*
3. *EBSTEIN, W. *The Nature and Treatment of Gouty Predisposition.*
4. SAHLI, H. *A New Method for Investigating the Circulation (Sphygmobolometrie).*
5. *RIHL, J. *Atrio-Ventricular Tachycardia.*
6. *EPPINGER, H. *Jaundice in Cholecystitis.*
7. STEINERT, H. *Vibration as a Test of Muscle Sense.*
8. *JEZIERSKI, P. V. *Animal Experiments with Leprosy Bacilli.*

1. In a short article, Wassermann reviews our present knowledge of immunity with especial emphasis on the standpoint of the practicing physician.

3. Ebstein claims that obesity, gout and diabetes owe their origin to cellular changes in metabolism, and a predisposition to these conditions may be inherited. In gout this predisposition often manifests itself in early childhood. Children with this predisposition look strong with good color and appetite, but are subject to sudden dyspepsias; their skins and mucous membranes are irritable, outbreaks of eczema and urticaria are common, as are also catarrhal affections of head and air passages, obstinate coughs without purulent sputum, pharyngitis, migraine attacks, tendency to nose bleeds without discoverable cause, joint and muscle pains. Such symptoms in children whose parents have had gout are significant and they should be put on a careful diet and hygiene to ward off, if possible, later typical gouty attacks.

In 194 cases of typical joint gout, Ebstein found a heredity taint in 77, while in 136 cases of "gouty tendency," *i. e.*, cases without either of the cardinal symptoms, joint attacks or tophi. Fifty-six had a history of gout in the family. Among these same 136 cases he found 34 who suffered from one or the other form of metabolism disturbance, 30 with obesity and 4 with diabetes. One hundred and thirteen of these cases had chronic forms of joint disturbances, the hands and fingers being involved in 53, the great toe joints in 40. Twenty-four had renal symptoms and about an equal number cardiac troubles, palpitation, angina, asthma.

Ebstein's treatment consists of a strict hygiene and regular life with a diet similar to that he uses in the closely-allied disorder, obesity. Sugars and carbohydrates are strictly limited and a sufficient amount of fats and albumin, either animal or vegetable, given instead, usually from 60–100 gr. a day. Alcohol in all forms is prohibited.

5. Rihl analyzes, with the aid of tracings, a case of tachycardia in which the disturbance was brought about by a series of extra systoles. The attacks were short and of moderate severity.

6. Eppinger gives some additional results of his study of the pathology of jaundice. At the autopsy of a case of cholecystitis with slight jaundice, dying from other causes, he could fiud no mechanical cause for the jaundice, either by anatomical or histological investigations, but the mucous membrane of the gall bladder was ulcerated in spots and in the nearby tissues bile coloring matter could be found. In experiments on dogs, after injuring the mucous membrane of the gall bladder and tieing off the cystic duct, he was able to produce bile in the urine. Eppinger concludes that there is a possibility that the slight jaundice often found in cholecystitis attacks may be produced by the passage of bile coloring matter through the injured wall of the gall bladder into the blood.

8. Jezierski's attempts to inoculate various animals with leprosy bacilli were unsuccessful. Pure cultures and fresh human material were used and the injections made in various ways. [L. G. M.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

MAY 11, 1907.

1. WILSON, E. B. *Some Recent Studies on Heredity.*
2. *DAVIS, D. J. *Bacteriology of the Respiratory Tract with Special Reference to Influenza Bacilli.*
3. *PERSHING, H. T. *The Gradual Cure of Hysterical Paralysis.*
4. *POTTENGER, F. M. *The Underlying Principles of Tuberculin Therapy.*
5. *CANNADAY, J. E. *Conservative Surgery of Arms and Legs.*
6. *CARPENTER, H. C. *Buttermilk Feeding.*
7. CROWDER, T. R. *Problems of Car Sanitation.*
8. *HOFFA, A., and WOLLENBERG, G. A. *Chronic Articular Rheumatism and Arthritis Deformans.*
9. *RIESMAN, D. *Development of Cardiac Murmurs during Attacks of Biliary Colic.*
10. *RICHARDSON, W. W. *Torsion of the Great Omentum.*

2. Davis has studied the sputa in various infectious diseases with special reference to determining the frequency of influenza-like bacilli. Both smears and cultures were made to insure certain identification. Influenza-like bacilli were present in 61 out of 68 cases of whooping cough, 13 out of 23 cases of measles, 7 out of 11 of varicella, 5 out of 12 of bronchitis. In 17 cases of typical clinical influenza the bacilli were found only 3 times, and in 20 normal throats they were found twice. Streptococci, pneumococci and the micrococcus catarrhalis are also mentioned as of frequent occurrence. One culture of influenza bacilli from a case of whooping cough was transplanted to the throat of a healthy man and produced a slight fever with profuse mucous expectoration, containing many of the bacilli. From the absence of influenza bacilli in many cases of clinical influenza and from their presence in normal throats it is concluded that the symptoms of the disease can be caused by organisms other than Pfeiffer's influenza bacillus, and also that influenza bacilli may occur in the throat without causing disease. Experiments in agglutination and phagocytosis are also recorded, but without results of general interest.

3. Pershing believes that although the sudden cure of hysterical paralysis may be the more striking and dramatic, its attempt should be largely abandoned in favor of the more gradual and more certain method of re-education. The sudden cure by powerful mental influences risks all on the attempt; if it fails the further treatment is rendered much more difficult, and if it succeeds the patient has not received the training and discipline which is so necessary to future welfare in hysterical cases. The gradual cure is, therefore, in the long run more satisfactory. Hysterical paralysis is most constantly accompanied by loss of the kinesthetic sense, even the thought or idea of motion often being impossible; the kinesthetic center is probably overwhelmed by a preponderance of inhibitory impulses incidental to perverted ideas and emotions. The emotional tone of the patient is therefore first to be raised by all possible means. Exhilarating influences both in the mental atmosphere and in the physical surroundings are to be employed in every possible way. Parallel with these general measures the dormant kinesthetic sense is to be acted upon by sensory stimulation, such as strong faradic currents and vigorous passive motion, the patient paying close attention to note the beginning of the slightest sensation. When some degree of sensibility has been awakened, exercises in voluntary motion are to be commenced, the motions being at first made passively, the patient only attempting to aid in their accomplishment. The extent and strength of the motion can gradually be increased until the patient is able to practise them in the absence of the physician. The patient is all the time to be encouraged and educated in self-reliance, which is essential to permanent relief from the disease.

4. Pottenger's article is an attempt to describe in a somewhat elementary manner the present status of tuberculin therapy from the point of view of a somewhat sanguine adherent. Bacterial diseases result when the bacteria which cause them gain a foothold in the body. The outcome of these diseases depends upon the relative strength of the infecting agents and the body resistance. The power of body resistance, therefore, when once the infection has taken place, is the chief factor by which the outcome can be influenced. The defensive forces of the body are believed to reside in various substances, antitoxins, bacteriolysins, etc., but most important, according to Pottenger, who accepts without question Wright's teachings, is the action of the opsonins. It is in the study of the opsonins by Wright and others that the use of tuberculin, first introduced fifteen years ago, has recently

received a new impetus. Many observers, following Wright's methods, have found that injections of tuberculin have been followed by an increase of the opsonic power of the blood toward the tubercle bacillus. Pottenger himself has collected 1,200 first-stage cases of tuberculosis, of which 611 were treated in sanatoria without tuberculin, and 589 were treated mostly outside of sanatoria, but with tuberculin. Of the first series 64% were apparently cured, and of the second series 84.2% were apparently cured. In 15 cases of tubercular laryngitis he has reported complete cure in 11. From these and from other statistics he concludes that tuberculin deserves more general use.

5. Cannaday urges that every effort should be made to avoid amputations, even in spite of slightly increased risk to life. Some writers go so far as to say that no primary amputations should be done. Certainly wherever the distal circulation is at all good, there is reason to believe that the limb can be saved, and recent work in the anastomosing of blood vessels promises even better results in future. Tourniquets and probing the wound are to be avoided. The wound should be irrigated with hot salt solution followed by 0.5% solution of iodine. Bones may be sutured if the patient's condition warrants it, but too much should not be attempted at the beginning. Drainage is usually necessary. Moist gangrene calls for radical treatment. Much of the success of the final result depends upon the after-care of the patient.

6. Carpenter reports twelve cases of babies with infantile atrophy, gastro-enteritis, etc., in whom he had generally good results from the use of the following mixture: Buttermilk, 1 quart; wheat flour, 3½ teaspoonfuls; granulated sugar, 15 teaspoonfuls. The ingredients were carefully mixed, heated up to the boiling point, but not boiled, and then rapidly cooled and kept till used. Full directions are given for the preparation, precautions against curdling, etc. The cases were not selected as likely to do well, but in every case regular milk mixtures had been tried and failed before the buttermilk feeding was begun. The ages ranged from one to fifteen months; the average gain in weight during the use of buttermilk was 8 oz. a week. Carpenter remarks the advantage of cheapness in the buttermilk feeding and believes it a most excellent food for infants suffering from intestinal indigestion, enteritis and marasmus. He has observed no unpleasant effects from its use; children almost invariably take it well. A few, when first put on the diet, vomited slightly, but, with one exception, this ceased in a day or two. The point he specially emphasizes is that the success is not so much due to the absence of fat as to the great ease with which the proteid of buttermilk is digested. He has observed this in almost every case. Several of the infants who were unable to digest 0.75% of calcium casein digested perfectly the 2% or 3% of casein lactate in the buttermilk.

8. Hoffa distinguishes from arthritis deformans a type which he calls polyarthritis chronica progressiva primitiva, or, shorter, arthritis destruens, on account of the characteristic destruction of the joint ends. It begins in the small joints and spreads to the larger ones, causing deformities of various types, is markedly progressive in its course and is accompanied with pronounced atrophy of muscles and bones. The breaking down of the cartilage is also significant, the outlines of the joints disappear, the ends of the softened bones press on and into each other, producing deformities that have been taken for new bony growths. Sometimes, in addition to the typical alterations at the base of the phalanx, there is slight new formation of bone, but, unlike arthritis deformans, the x-ray shows complete destruction of the joint, the reparative forces active in arthritis deformans are exceptional here. The x-ray gives different pictures in the two affections: in arthritis destruens the pathologic process begins, in striking contradistinction to the other disorder, in the synovialis; in arthritis deformans we have to deal with a primary affection of the skeleton parts of the joint; in polyarthritis progressiva, on the contrary, with a primary affection of the soft parts of the joint. The former Hoffa classifies among the non-infectious joint diseases, the latter among the infectious. The treatment of arthritis destruens is much more difficult than that of the other disorder. Hoffa, however, has had good results in some cases with the use of supporting apparatus after stretching the contractures, fixing the limb in the stretched position, removing the supports only when the joint swellings have largely disappeared and the pains are entirely gone. He advises against doing this too early, as relapses are liable to occur. Mud baths are a useful accessory, and with massage of the atrophied muscles the patient may, after years, be able to dispense with the supports.

9. Riesman reports two cases in which during or soon after an attack of biliary colic a systolic murmur not previously present was heard at the heart apex. A small number of similar cases have been reported by other observers. Riesman believes the murmur to be due to a relative mitral and perhaps also a tricuspid insufficiency caused by dilatation of the heart during the colic.

10. Richardson reports a case of torsion and strangulation of the great omentum and summarizes the literature of the subject. In all, sixty cases have been described, and undoubtedly the condition is more frequent than is recognized, since the diagnosis has only once been made except at operation or autopsy. The principal predisposing cause is hernia, which fixes the normally free edge of the omentum. No definite symptomatology can be given. Most cases have been taken for intestinal strangulation, appendicitis, or peritonitis. The presence of an old omental hernia continuous with a mass within the abdomen might make the diagnosis possible in some cases. The treatment is operation, as early as possible. [F. W. P.]

THE JOURNAL OF MEDICAL RESEARCH.

MARCH, 1907.

1. HENDERSON, L. J., and WEBSTER, H. B. *Preservation of Neutrality in Culture Media with the Aid of Phosphates.*
2. MCCONNELL, G. *The Elastic Tissue of Carcinomata.*
3. *BUXTON, B. H. *Absorption from the Peritoneal Cavity.*
4. *TYZZER, E. E. *The Pathology of Brown-Tail Moth Dermatitis.*
5. DUTTON, E. J., TODD, J. L., and TOBEY, E. N. *Trypanosomes of the Trumpeter Hornbill.*
6. AUSTIN, A. E. *The Uricolytic Enzyme.*
7. RIVAS, D. *B. Coli Communis, "The Presumptive Test," and the Sewage Streptococci in Drinking Water.*
8. SOUTHARD, E. E. *Lesions of the Granule Layer of the Human Cerebellum.*
9. AISBERG, C. L. *Oxidative Ferments in a Melanotic Tumor of the Liver.*
10. KEENAN, C. B., and ARCHIBALD, E. W. *Fatty Tumor of Kidney Suggesting a Metamorphosis of Adrenal Cells into True Fat.*

3. Buxton finds that bacteria injected into the peritoneal cavity of experimental animals even in minute doses reach the circulation in a few minutes, this immediate absorption taking place by the lymphatics of the diaphragm. Assuming that the same process takes place in human beings, Fowler's (sitting) position is indicated in peritoneal infections, and flushing of the peritoneal cavity is contra-indicated. It may be that deaths soon following operations for perforation with irrigation are due not to "shock," but to rapid absorption of bacteria. These conclusions apply mainly to infections by B. coli communis and allied species; there is reason to believe that streptococcus infections behave differently.

4. Tyzzer describes the results of his investigations as to the cause and method of production of the brown-tail moth dermatitis. It has been known for some time that the lesions are produced by the so-called "nettling hairs" of the caterpillar, present also in the moth and in the cocoons, which penetrate the skin and remain lodged in the tissues. It has been thought that the action of these in producing irritation was merely mechanical. This, however, Tyzzer disputes, on account of evidence of a chemical irritant which the following facts seem to establish. Heating the hairs to 115° C., or extracting them with dilute alkalies or with water at 60° C., deprives them of their irritant power, although their penetrating power remains undiminished. After subjection to these processes the action of the hairs is identical with that of glass, wool or other chemically inactive penetrating particles which produce only a slight redness when they are rubbed into the skin. Further evidence of the presence of a toxic substance is the reaction which takes place when the active

nettling hairs are mingled with a drop of mammalian blood and observed under the microscope; about the point of the hair the rouleaux of red blood corpuscles are broken up and the individual corpuscles become crenated and spherical. In lesions excised from human skin and in the tissues of inoculated animals necrosis and inflammatory exudates were observed about the hairs. It seems reasonably certain, therefore, that the main factor in production of the dermatitis is an irritant substance present in the hairs. The chemical nature of this substance was studied by Alsberg, but no conclusions could be reached with the small amount of material so far obtained. There is some reason to believe that the irritating substance is a secretion of the cells lining the hair sockets and that this substance is transmitted through the hair and discharged through a minute opening at its point. This theory, however, is only suggested and requires further investigation.

[F. W. P.]

THE LANCET.

MAY 4, 1907.

1. HALLIBURTON, W. D. *New Facts in Relation to the Processes of Nervous Degeneration and Regeneration. Lecture I.*
2. WALL, C. *Cerebro-Spinal Fever.*
3. *HOUSTON, T., and RANKIN, J. C. *A Note on the Opsonic Power of the Serum with Reference to the Meningococcus of Cerebro-Spinal Fever Occurring in the Belfast Epidemic.*
4. WATERHOUSE, R. *Notes on a Case of Osteitis Deformans, and an Account of the Skeleton of a Typical Example.*
5. CARMICHAEL, E. W. S., and WADE, H. *A Case of Primary Sarcoma of the Liver in a Child Aged Four Months.*
6. *SALVIN-MOORE, J. E., and BREINL, A. *Note on the Life Cycle of the Parasite of Sleeping Sickness.*
7. *ARNOLD, M. B. *On the Effect of the Exposure to Tobacco Smoke on the Growth of Pathogenic Micro-Organisms.*
8. *STUART-LOW, W. *The Use of Animal Blood in Surgery: Preliminary Notes.*
9. *KRAUS, O. *The Balneological Treatment of Urinary Diseases.* (Concluded.)

3. The writers believe that with the meningococcus the opsonic method gives two methods of showing the presence or absence of infection, one the opsonic index, the other the agglutination reaction. The opsonic index is the more delicate test of infection, the culmination of both a specific test of great value in diagnosis. This method may be of value in diagnosing sporadic cases and cases of posterior basic meningitis in infants as well as in determining the nature of a doubtful coccus.

6. It is known that trypanosoma gambiense can be transferred directly from animal to animal for many years, and that a third intermediate host is at least quite unnecessary. In infected rats, the disease runs a fluctuating course with respect to the number of parasites to be found in the peripheral blood, there being a succession of periods when no trypanosomes can be found at all. When the number is rising there is seen only amitotic division of macro- and micro-nuclei; as the number falls a disintegration of the organisms takes place, and when no more are found there are present in the blood so-called resistant-forms, hitherto erroneously interpreted, spore-like bodies, which enlarge and divide off into small trypanosomes.

7. Arnold tested the bactericidal properties of tobacco smoke and smoke from a nonnicotine-producing substance on the organisms of diphtheria, typhoid and on the colon bacillus staphylococcus aureus and the streptococcus. Different tobaccos were used and no variation in their effect produced. The results were as follows: (1) The bacillus of diphtheria was always markedly affected, often not growing at all. (2) Typhoid bacilli grew, but less in tobacco smoke than in smoke from hay, as did the colon bacillus. (3) The staphylococci were hardly affected at all. (4) With streptococci no growth took place in the smoked tubes. The writer wishes to make clear that he did not do this as an argument in favor of tobacco smoking.

8. Stuart-Low believes that serum exuding over the surface of any wound is essential to rapid repair. He has experimented with sterilized sheep's blood serum as a dressing for his surgical cases with remarkably satisfactory results and recommends its further use.

9. Kraus of Carlsbad gives his opinions of the value of Carlsbad treatment of various diseases based on eighteen years' experience. He believes patients should be sent to Carlsbad whose progress at home has been unsatisfactory, whether for local or for general treatment. In invalids and elderly people the season of the year at which they are sent should be selected with care. Recently they have been having very satisfactory results with cases of acute and subacute nephritis if without edema and ascitis. If these are present a course at Carlsbad will do no good. With cases of chronic uremia the best results are obtained. The gastric and intestinal disturbances, headaches, asthma, dyspnea, etc., rapidly disappear. If there are signs of failing cardiac compensation, the case should not be sent. Pyelitis, due to whatever cause, is relieved and often cured. Kraus's feeling about kidney stone is that if found by x-ray and if greater in size than an almond, an operation should be done at once. If less than that, Carlsbad will help it. Strangely enough, many cases of vesical calculi are sent which should have been operated on at home. It is in the *after-treatment* of nephrolithiasis and vesical stone that a course at Carlsbad is invaluable. He discusses at length the futility of the term "uric acid diathesis," and speaks of the importance of dumb-bell-shaped and pointed uric acid crystals as prognostic of renal or vesical stone in the future. He cites cases of this. A simple non-gonorrheal cystitis clears up at once at Carlsbad.

The "pseudo-urinary" cases, *i. e.*, patients with symptoms such as painful or frequent micturition, colic, etc., pointing to disease of the kidneys but really due to some other cause, are often sent to Carlsbad and generally greatly helped. Carlsbad treatment is contra-indicated in cases of tuberculosis of the genito-urinary tract.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

MAY 4, 1907.

1. LANE, W. A. *Clinical Remarks on the Operative Treatment of Fractures.*
2. POLLARD, B. *Clinical Observations on a Case of Diverticulum of the Esophagus.*
3. HALLIBURTON, W. D. *New Facts in Relation to the Processes of Nervous Degeneration and Regeneration.*
4. M'ELDOWNEY, W. P., and COUSINS, J. W. *Remarks on a Case of Severe Compound Fracture of the Skull with Recovery.*
5. COWEN, G. H. *Case of Subcutaneous Injury of the Pancreas. Operation: Recovery.*
6. WALTERS, C. F., and HALL, I. W. *Retroperitoneal Sarcoma of Douglas's Pouch.*
7. LEACH, E. *Acute Pelvic Abscess Followed by Acute Obstruction.*
8. THOMSON, J. *Note on the Peculiarities of the Tongue in Mongolism and on Tongue-Sucking in Their Causation.*
9. ROLLESTON, J. D. *The Accidental Rashes of Varicella.*
10. MILLAR, J. G. *Merycism or Rumination in Man.*

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, No. 15.

APRIL 9, 1907.

1. *GEIGEL, R. *Endocardial Friction Sounds.*
2. *STRASBURGER, J. *The Elasticity of the Aorta in Beginning Arteriosclerosis.*
3. *ZACHARIAS, P. *The Treatment of Mastitis with Passive Congestion.*
4. DEUTSCHLÄNDER, C. *The Treatment of Bone and Joint Tuberculosis with Passive Congestion.* (Continued article.)
5. *THOREL, C. *A Case of Primary Melanotic Sarcoma of the Spinal Meninges.*
6. BARLACH. *The Treatment of Anthrax.*
7. RUNCK, T. *Bromural, a New Sedative.*
8. GRÜNEWALD, R. *A Method for the Detection of Sugar in the Urine.*
9. MAURER, G. *Are the Polyneuritis of Hens and Beri-Beri Due to Chronic Oxalic Acid Poisoning?* (Re-

marks on the above-named article of C. Eijkman in No. 3 of this Journal.)

10. Lange, F. *What Can the General Practitioner Do to Ameliorate the Lot of the Cripple?* (Concluded.)

1. Geigel believes in the existence of an endocardial friction sound. This is said to occur in acute endocarditis affecting the mitral or tricuspid valve. The murmur is rough, interrupted, often not strictly limited to systole, and may resemble closely the pericardial friction. Signs of regurgitation are frequently lacking. The conditions for the production of the sound are excrescences or ulcerations along the line of closure of the valve. As soon as retraction of the valve segments has taken place, the irregularities will no longer touch one another and no friction sound will be produced. Geigel bases his theory partly on theoretical considerations, partly on cases in which a friction sound, supposedly pericardial, was heard during life, for which not other cause than a fresh endocarditis could be found.

2. Strasburger's researches on the elasticity of the aorta in early arteriosclerosis show that in this condition the distensibility is diminished. These results are exactly the opposite to those obtained by Thoma, who, as the author shows, worked with a faulty method.

3. Zacharias has used the Bier congestion method in mastitis, with excellent results; out of 30 cases treated by the old methods, 33% came to incision, while of 33 cases treated with congestion, only 6% required the knife. The passive hyperemia is produced by the application of a glass bell-jar, from which the air is exhausted by means of a syringe. It is put on two or three times a day for thirty minutes; after ten minutes the bell is removed and reapplied.

5. The possibility of a primary melanotic sarcoma of the central nervous system has been denied by some. Pigment, identical with that of the skin and the choroid is normally present in the meninges in certain places, *i. e.*, near the pons and medulla in the Sylvian fissure. In certain cases this pigmentation becomes increased and general, giving rise to the so-called melanosis of the membranes. And finally, true melanosarcoma may arise, as the case of the author and two others in the literature show. [W. T.]

Beiträge zur Klinischen Chirurgie. Band liii. Heft 3.

March, 1907.

15. *Boettcher, T. *The Prognosis of Operations for Spina Bifida.*
16. *Suter, F. A. *Peru Balsam in the Treatment of Wounds.*
17. *Henschen, K. *Fracture of Spinous Processes of the Vertebræ by Muscular Violence.*
18. Zaayer, J. H. *Staining of Tumors for Macroscopic Examination.*
19. *Mandry, G. *The Serum Therapy of Traumatic Tetanus.*
20. Veit, E. *One Hundred and Fifty Cases of Lumbar Anesthesia.*
21. Stark, W. *The Operative Treatment of Tuberculosis of the Mesenteric Lymph Glands.*
22. Steinthal. *"Essential" Renal Hemorrhage.*
23. Hofmann, A. *Gunshot Injuries During Times of Peace.*
24. Rimann, H. *Neurofibromatosis Congenita.*

15. Boettcher bases his paper on 64 cases of spina bifida collected at the clinic of Professor Garrè. The anomaly is best divided, according to the anatomical findings, into (1) a meningocele, (2) a myelocystocele, (3) a myelocystomeningocele, and (4) the rare instances of spina bifida occulta. In the first instance the walls of the hernia consist of the meninges only, the cord being uninvolved except that it may be prolapsed into the sac. In the second instance the cavity of the sac is formed by a dilatation of the central canal of the cord, the walls consisting of its substance. The third variety consists of a combination of the preceding two. Thirty-nine of the 64 cases were operated on, only 4 of this number being over a year old. In general, the prognosis depends largely on the localization of the fissure in the spinal canal, and on the condition of the tumor. The lower down the seat of the tumor, the more favorable is the outlook, especially when it is situated in the region of the cauda equina. The thicker and better preserved the skin covering the tumor, so much the less danger is there of infection following operation. The less the cord is involved in the anomaly — that is the nearer the condition approaches that of a pure meningocele — the better the outlook. Of the 39 operated cases 25 died, giving a general mortality of 70%. As a direct result of the operation 13, or 52%, died. The cause of death was given as meningitis in 6 cases, postoperative hydrocephalus in 4 cases and in the remaining 3, unknown. Aside from the age at which this operation must be done, the great dangers leading to the above mortality are ulceration of the sac at the time of operation, making asepsis extremely difficult, and hydrocephalus. The type of case in which the cord itself or a portion of it forms the wall of the cyst is usually to be considered inoperable. The prognosis of spina bifida as regards hydrocephalus Boettcher sums up as follows: (1) Cases presenting hydrocephalus at or before operation are unfavorable, for without exception this increases after the sac is closed. (2) Post-operative hydrocephalus is most to be feared in those cases where, because of ulceration of the sac, local asepsis is practically impossible. Under ordinary conditions the occurrence of a hydrocephalus after operation is rather rare.

16. Suter has used balsam of Peru in 552 cases of recent accidental wounds with very good results. In remarkably few cases were there any untoward occurrences, though the balsam was used in every variety of wounds including compound fractures. None of the common antiseptics were used, but after cleaning the skin about the wound with benzine, sterile balsam was poured into it and a gauze dressing applied. In cases where it was difficult to be sure that all portions of the wound were filled by pouring, it was introduced by means of a syringe. This dressing was allowed to remain in place a few days unless there was some special indication for its removal. The same treatment with the balsam was repeated at the subsequent one or two dressings, and then only dry gauze used. The experience is based on careful animal as well as bacteriological data. The action of the balsam seems to depend on (1) its ability by inclosing bacteria to make them harmless; (2) on a somewhat slight bactericidal property, and on (3) its power to call forth an increased number of leucocytes by chemotaxis. It has no power over the toxin of the bacillus of tetanus. One should not attempt to use the balsam on any but recent non-suppurating wounds.

17. Two cases of fracture of the spines of the vertebræ are reported. In the first case the first and second dorsal spines were the ones involved; in the second case, besides these, the seventh cervical was also broken. Lifting or swinging to or from the shoulder a heavy load was the cause in each instance. The diagnosis was made on the presence of limitation of motion of the arm and shoulder, pain, local crepitus and by the x-ray.

19. From his experience in the treatment of tetanus by serum injection Mandry concludes that the mild cases recover without its use, while, in spite of its use, the severe cases die. [W. C. Q.]

Miscellany.

THE AMERICAN MEDICAL ASSOCIATION.

American Medicine devotes the editorial columns of its May number to a discussion of the possibilities and dangers lying before the American Medical Association. We quote the general sentiments expressed:

"The defects in the plan of organization of the American Medical Association are few, but are becoming apparent through the experiences of five years' trial. The evils of too much officialism are recognized generally throughout the profession and protest is common; centralization of power means opportunity for corruption by a concentration of temptation. The

provision of the referendum in the constitution of the association was intended to protect the members against these possibilities, but in its present form it is inadequate. The rights of individuals in professional organizations are strongly upheld by the vast majority of the right thinking men of the profession. The establishment of the principle of self government is necessary; important matters of general policy should be referred to the body of members of the association; the *Journal* is the property of the members of the association, not of its trustees or officers; it must, therefore, be conducted in the spirit of the profession at its best, not as may seem good to any individual or coterie. Every constituency is entitled to know how its representative represents. Concerning this contention, President Bryant has nobly said, 'Since every rose has its thorn, it should not be overlooked at this time that the flowery probabilities of mutual scientific medical journalism might easily be inhibited, and even destroyed by the thorny possibilities of selfish, time-serving desires.' The powers and functions of certain officers are too great. This applies not only to elected officers, but to those appointed by the trustees. The duties and functions of the editor of the *Journal* must be more clearly defined. The secretary of the association represents the association most peculiarly, not alone to individual members, but also among the scientific bodies of the world. Constituent ownership should be the keynote of both the association and its journal. Independent professional medical journals are more peculiarly representative of the profession than the society organs. Any attack upon their existence by organized power is a direct blow at the profession itself. Trades-union methods are not in the spirit of the profession.

"Reforms demanded in the interest of progress may be summarized as follows:

"1. Verbatim reports of the proceedings of legislative and governing bodies.

"2. Intemization and utmost publicity of financial matters.

"3. Proper representation in the offices of secretary, of editor, and of business manager by separate individuals, with proper compensation.

"4. Nondiscretionary power of the editor, with government by the sections of the published proceedings.

"5. The rendering impossible of trades-unionism and monopolistic methods,.

"6. Provision for general secret ballots upon important questions of policy by means of the machinery of the association and its *Journal*, through district and county societies.

"7. The extension of the referendum and initiative from the optional legislative to the popular and obligatory form.

"8. In order to protect apparent minorities, placing the vote necessary for both referendum or initiative upon a reasonable basis.

"9. The rights of individual members must be held inviolate from attack by those in power.

"10. The association and *Journal* must be enjoined from entering into purely commercial competition to the detriment of its professional rivals.

"11. No paid agent of the association should be permitted to be a member of, or take part in the deliberations of, the bodies governing or directing his actions or compensation.

"These reforms are demanded by a large and increasing body of the profession, among whom are many members of the association and not a few of its officers. They are here presented for discussion by the House of Delegates at the approaching annual meeting. May that body have wisdom sufficient for reform from within lest reform be forced from without."

REDUCTION OF MEDICAL FEES BY LIFE INSURANCE COMPANIES.

AT a meeting of the Essex North District of the Massachusetts Medical Society, held in Lawrence, Mass., May 1, 1907, the following resolutions were unanimously adopted:

I. That the following preamble and resolutions are adopted by this society in session at Lawrence:

Whereas, Many of the life insurance companies have notified their medical examiners of reduction of examining fee from $5 to $3; and

Whereas, We, as physicians, realizing the responsibility incident to proper examination of the individual, believe such reduction to be unjust; therefore, be it

Resolved, That the Essex North District of the Massachusetts Medical Society, and the medical profession in sympathy with them, in session assembled, do hereby declare such reduction to be unjust, and respectfully request that no physician legally authorized to practice medicine in the cities of Haverhill, Lawrence, and Newburyport, and the towns of Amesbury, Andover, Boxford, Georgetown, Groveland, Merrimac, Methuen, North Andover, Rowley, Salisbury and West Newbury accept such reduction of fee; and further, that any physician accepting such reduction be guilty of a breach of professional courtesy.

Resolved, That it is the sense of this society that hereafter in each examination for life insurance in which urine analysis is required the minimum fee shall be $5.

Resolved, That the several component societies forming the State Association be requested to adopt these resolutions.

II. That the above rates shall not apply to industrial medical inspections, without urinary analysis, for amounts less than $1,000.

III. That no member of this society enter into any contract or agreement with any corporation, society, association, company, or individual, to examine applicants for insurance for any stated salary or lump sum, thereby evading the spirit and instinct of the foregoing resolutions.

IV. That the payment of all fees shall be authorized by the home office of the society or corporation to which such application is made, and under no circumstances shall an examiner receive or accept any part of this fee from an agent or any other person or corporation, unless the full fee be paid by authority of the home office.

V. That each member of this society pledge himself or herself, in case a fellow-member be removed from the position of examiner for any corporation or society solely because of this action of the medical profession, that he or she will not accept an appointment from such corporation of society as examiner, nor make any examination for same in the jurisdiction of this society.

VI. That each member of this society bind himself or herself, by a pledge to be presented by him or her to the Secretary, to abide by these resolutions.

VII. That the Secretary be instructed to forward a copy of these resolutions to each

district medical society in Massachusetts for adoption.

VIII. That these resolutions be printed in the Boston Medical and Surgical Journal and a copy forwarded to *The Journal of the American Medical Association*.

M. D. Clarke,
Secretary.

Haverhill.

REPORT OF MILK COMMISSION.

May 22 the mayor's specially appointed milk commission, consisting of Drs. Jacobi, Bryant, Prudden, Holt and Freeman, handed in its report. It declared that the danger from the transmission of tuberculosis bacilli had been greatly overestimated. This was in reality slight, and legislation was pending to overcome what danger there was from this source. Protection from other diseases could not be secured without adequate inspection, and it was therefore recommended that there should be an additional inspection force for the country districts supplying the city, of one hundred men, fifteen of whom should act as supervisors and receive higher pay. The use in all dairy farms of a standard equipment was also suggested. For New York City there were recommended twenty-five additional inspectors, five additional bacteriologists, and five additional chemists, together with such an increased clerical force as might be required. Score cards were suggested for rating the dairies, as well as labels to be placed on cans and bottles with the names of the farms and creameries from which the milk came. Score cards were advised also for the shops of milk dealers, and only those whose premises presented proper sanitary conditions should be allowed to handle milk. The sale of skimmed milk is now prohibited by law, and the commission recommended that such prohibition should be withdrawn, expressing the opinion that the sale of skimmed milk, labeled as such, would be advisable and harmless under thorough inspection. Another recommendation was that milk stations, such as had been maintained by Nathan Strauss, for the distribution of pasteurized and modified milk to the poor, should be provided to as great an extent as possible, and the education of the poor as to the care of milk in the home was suggested. In conclusion, the report recommended that the Health Department should, according to circumstances, require efficient pasteurization of all milk which it found unsafe for consumption as raw milk, on account of a suspicion of the presence of tuberculosis or other disease in the cows, or unsanitary conditions at the dairy, or of a persistent high bacterial content. But, in every instance, milk so heated should be rapidly cooled to at least 40° F. and be put, after sterilization or pasteurization, into sterilized containers under antiseptic precautions. The pasteurization of milk should be done only a few hours before delivery to the consumer, and the container should be marked with the time and date of pasteurization, as well as the degree and the duration of temperature employed for the purpose. The department should make frequent bacteriological examinations of all pasteurized milk, and should destroy such milk as contained more than 50,000 bacteria to the cubic centimeter.

INTERNATIONAL LARYNGO-RHINOLOGICAL CONGRESS:

TÜRCK AND CZERMAK MEMORIAL FESTIVAL. LARYNGO-RHINOLOGICAL EXHIBITION IN VIENNA, APRIL 21 TO 25, 1908.

It has been decided by the managing committee of the International Laryngological and Rhinological Congress, which is to take place in Vienna from the 21st to the 25th of April, to add an exhibition of objects connected with laryngology, rhinology, esophagoscopy and bronchoscopy, instruments for examination, operation and treatment, inhaling, electro-medical and illuminating apparatus and other technical aids, protheses, manuscripts, books, preparations, drawings, etc. All those interested are invited to take part in this undertaking.

All communications, accompanied by an exact description of the objects to be exhibited, are to be addressed not later than the 31st of December, 1907, to the Secretary of the Congress (Prof. Dr. Michael Groszmann, Wien, IX, Garnisongasse 10), in order that the objects may be correctly catalogued. Exhibits should be sent at latest by the 15th of February, 1908, to Herrn Ober-Ingenieur Jaroschka, Inspektor des k. k. Universitätsgebäudes in Wien, with whom they will be deposited. All objects will be insured against robbery, fire and damage. The import and export of exhibits has been declared as duty-free by the authorities.

UTERUS OF THE OPOSSUM.

Dr. John P. Furniss, in the *Medical Record*, says that there is only one species of opossum in America, none in Europe, and that they resemble the Australian animals. They are omnivorous and nocturnal in habits. The uterus is developed from the Müllerian ducts, which are first noticed in the fifth week of intra-uterine life, parallel with the Wolffian ducts. In the second month they unite near their centers; in the third and fourth months they blend in their lower parts; at the fifth month the cervix can be distinguished. The ducts diverge to form the Fallopian tubes. The anus and uro-genital fissure are surrounded by a common sphincter. The glans penis is bifurcated, the urethra opening in the center. The opossum is a nonplacental mammal. The young when expelled are the size of a bean, naked and immature. The mother attaches them to the teats and carries them in her bag until they are covered with hair, injecting the milk into their mouths by means of strong compressor muscles around the mammary glands.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 18, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,471	431	Quincy	13	4
Chicago	707	184	Waltham	4	1
Philadelphia	—	—	Pittsfield	—	—
St. Louis	—	—	Gloucester	2	—
Baltimore	196	39	Brookline	5	1
Cleveland	—	—	North Adams	8	5
Buffalo	—	—	Chicopee	7	1
Pittsburg	—	—	Northampton	6	0
Cincinnati	—	—	Medford	5	1
Milwaukee	—	—	Beverly	3	—
Washington	—	—	Leominster	6	—
Providence	74	19	Hyde Park	0	—
Boston	229	51	Melrose	4	0
Worcester	41	13	Newburyport	—	—
Fall River	44	21	Woburn	5	2
Cambridge	33	7	Marlboro	6	0
Lowell	40	7	Westfield	2	—
Lynn	24	9	Peabody	—	—
New Bedford	30	8	Revere	2	—
Springfield	28	5	Attleboro	3	2
Lawrence	37	9	Clinton	4	0
Somerville	21	1	Adams	8	3
Holyoke	18	8	Gardner	—	—
Brockton	15	10	Milford	—	—
Malden	8	2	Watertown	3	2
Chelsea	11	0	Plymouth	—	—
Salem	7	2	Weymouth	4	—
Newton	7	2	Framingham	4	1
Haverhill	10	2	Southbridge	—	—
Fitchburg	—	—	Wakefield	—	—
Everett	9	—	Webster	—	—
Taunton	—	—			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING MAY 25, 1907.

J. S. TAYLOR, passed assistant surgeon. Ordered to Naval Hospital, New York, N. Y.

W. H. SHORT, assistant surgeon. Ordered to the Naval Hospital, New York, N. Y.

R. B. CHAPMAN, assistant surgeon. Resignation accepted, to take effect July 1, 1907.

RESIGNATION.

DR. NATHAN P. THAYER has resigned from the position of resident physician at the Long Island Hospital.

APPOINTMENT.

FOLLEN CABOT, JR., M.D., has been appointed Professor of Genito-Urinary Surgery at the New York Post-Graduate Medical School and Faculty.

SOCIETY NOTICES.

THE TENTH ANNUAL MEETING OF THE ASSOCIATION OF MEDICAL LIBRARIANS (founded 1898). — The tenth annual meeting of this association will be held June 3, 1907, at the Marlborough-Blenheim Hotel, Atlantic City, N. J.

ALBERT T. HUNTINGTON, M.D., *Secretary*,
BROOKLYN, N. Y.

MEETING OF THE BOARD OF MEDICAL EXAMINERS FOR THE STATE OF TEXAS. — The last meeting of the Board of Medical Examiners for the State of Texas (regular) for examination will be held in Austin, Tex., June 25, 26 and 27, 1907. This examination will be held in accordance with the old medical law of Texas, and will be the last meeting of this board for examination, as the new medical law of Texas, the one board bill, becomes effective on the thirteenth day of July, and under the provisions of this law applicants only will be permitted to appear for examination who are graduates from medical colleges of not less than four terms of five months each. For further information concerning this examination address the secretary.

T. T. JACKSON, M.D., *Secretary*,
SAN ANTONIO, TEX., Hicks Building.

S. R. BURROUGHS, M.D., *President*,
BUFFALO, TEX.

AMERICAN ASSOCIATION FOR THE STUDY OF THE FEEBLE-MINDED. — The thirty-first annual session of this association will be held at Waverley, Mass., June 5, 6 and 7, 1907. All those interested are cordially invited to attend. Communications may be addressed to

DR. W. E. FERNALD,
Waverley, Mass.

RECENT DEATHS.

JOSEPH D. MANSFIELD, M.D., M.M.S.S., died in Wakefield May 22, 1907, aged ninety years.

JAMES BRADLEY EVERETT, M.D., M.M.S.S., died in Everett May 20, 1907, aged seventy-eight years.

GEORGE HENRY WATSON, M.D., M.M.S.S., formerly of Bridgewater, died in Flatbush, N. Y., May 26, 1907, aged fifty-nine years.

DR. A. C. BERNAYS died in St. Louis May 22, at the age of fifty-three years. He graduated in medicine at the University of Heidelberg in Germany, and was a fellow of the Royal College of Surgeons of England. He had a large surgical practice in the Southwest.

DR. GUY DAVENPORT LOMBARD, of New York, died on May 22, after a short illness. He was descended from John Lombard, who settled at Springfield, Mass., in 1646, and from Thomas Davenport, who came to this country in 1840, and was born, on Jan. 11, 1872, in Northampton, Mass., where his father, the late Rev. James K. Lombard, was rector of St. John's parish. He was graduated from the medical department of the New York University in 1896, and afterwards served as interne in Bellevue Hospital. Since 1898 he had been instructor in histology in Cornell Medical College, in the laboratory of which he did considerable research work, and for several years he was secretary of the New York State Medical Association.

DR. CHARLES A. FOSTER, one of the medical staff of the Manhattan State Hospital for the Insane, Ward's Island, New York City, died suddenly on May 19, at the age of fifty-eight years. He had long been a resident of Saugerties on the Hudson, and only came to the Manhattan Hospital a few months ago. Dr. Foster was well known as a specialist in psychiatry and a writer on insanity.

DR. RICHARD CALDWELL BREWSTER, of Brooklyn, N. Y., died on May 18, after a long illness. He was born in Goshen, Orange County, N. Y., in 1844. He was first graduated in dentistry, which he practised with success, and in 1890 was graduated from the Long Island College Hospital.

DR. HENRY W. CARPENTER, of Oneida, Madison County, N. Y., died on May 20, at the age of seventy-five years. He was graduated from the medical department of the University of the City of New York in 1858, and was for some time coroner of Madison County. He was also formerly a member of the State Legislature.

BOOKS AND PAMPHLETS RECEIVED.

Report of the Commission on Industrial Education. March, 1907. Boston.

The Psychic Element in the Practice of Medicine. By David W. Wells, M.D. Reprint.

The Overtreatment of Syphilis. By George Henry Fox, A.M., M.D. Reprint.

Diet as a Therapeutic Measure in Diseases of the Skin. By George Henry Fox, A.M., M.D. Reprint.

Annual Report of the Lynn, Mass., Hospital for the Year 1906.

Tenth Annual Report of the Trustees of the Massachusetts State Sanatorium at Rutland. Nov. 30, 1906. Boston.

Manual of Anatomy, Systematic and Practical, Including Embryology. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S. Glas. Vol. II. Illustrated. Chicago: W. T. Keener & Co. 1907.

Transactions of the Twelfth Annual Meeting of the American Laryngological, Rhinological and Otological Society held in Kansas City, Mo., June 11, 12 and 13, 1906. St. Louis. 1907.

The Importance of the Early Discovery and Treatment of Defectives in Special Public School Classes. By Walter E. Fernald, M.D. Reprint.

Die Hilfsmassnahmen bei der Zerstörung von San Francisco. Von Carl Beck. Reprint.

Um die Weihnachtszeit nach Florida. Von Carl Beck. Reprint.

The George Washington University Publications. Medical Science Series. The Influence of American Surgery on Europe. By Carl Beck. Reprint.

A New Method of Orchidopexy. By Carl Beck, M.D. Reprint.

Address.

THE AMERICAN MEDICAL ASSOCIATION, ITS AIMS AND INTERESTS.

PRESIDENT'S ADDRESS AT THE FIFTY-EIGHTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION JUNE 4–7, 1907.*

BY JOSEPH D. BRYANT, M.D., OF NEW YORK CITY.

THE fifty-eighth consecutive session of the American Medical Association is now at hand. Those members whom you kindly honored one year ago with your confidence in official station are now before you in token of their loyalty to your undertakings and of their obedience to your behests. These annual conferences are of prodigious moment to the entire medical profession and to the country at large; they serve to broaden the scope of general understanding; they extend the sphere and increase the vigor of professional fellowship and of healthy civic brotherhood, and they correspondingly elevate the station of our calling in the appreciation of thoughtful right-minded people everywhere in the land. Who of us was not made a better physician because of the visit to Boston a year ago? Who of us, then inspired by patriotic emotions, aroused by the memorable examples so abundantly at hand, did not again renew unalterable allegiance to the perpetuity of his country? In whom of us was not incited a higher fraternal sentiment by the warm grasps of fellowship which, while inviting delay a bit, everywhere urged us to a completed hospitality?

Again, for the third time, in the dawn of the twentieth century, we find ourselves in the warm embraces of the hospitable people of Atlantic City. Its wealth of sunshine and cheer, its pure and invigorating eastern breezes, and the joyous acclaim of its citizens assure us that we are in "honest waters which ne'er left man i' the mire," and, therefore, we feel entirely secure and correspondingly happy. We who before never yielded to subtle solicitation or to pressing demand now acknowledge that we have the Atlantic City "habit," and we refuse all treatment except that founded on the therapeutic virtue of the hair of the canine that inflicted the delightful traumatism! In the presence of such a felicitous environment as this, who is there among us who would be so thoughtless, or who could be so unfeeling as to countenance a trifling with the sense of justice, by individual favor, or of commendable desire by vain objection?

In looking about for a topic on which to base my allotted remarks on this occasion, I am, perhaps, unduly impressed with the idea that impersonal open-hearted introspection might not be amiss at this period of the association.

In this bearing I refer more especially, 1, to the organizing of the medical profession of the country and its potential perplexities; 2, to the elevating of the standard of medical education and its possible afflictions, and, 3, to the urgent demand for trustworthy medicinal means and of sincerer efforts on the part of every physician in securing a betterment of therapeutic methods.

Equity, consequent power and the durability of human designs are the legitimate assets of wisely conceived organization. Power and durability, not thus sustained, are of uncertain tenure, and organization resting thereon can be likened to a house of blocks tethered with ropes of sand. And it should be recognized at all times that the virile activities of the principles of human justice are wonderfully potent in all organized bodies of mankind.

THE OBJECT OF THE ASSOCIATION.

It is of great moment that this association has (as set forth in its constitution) but one significant object in view, viz., "The Promotion of the Science and Art of Medicine." And it is purposed in attaining this end "to unite into one compact organization the medical profession of the United States," in order to foster "the growth and diffusion of medical knowledge"; to promote "friendly intercourse among American physicians"; to safeguard "the material interests of the medical profession"; to elevate "the standard of medical education"; to secure "the enactment and enforcement of just medical laws"; to enlighten and direct "public opinion" regarding the "broad problems of hygiene," and to present "to the world the practical accomplishments of scientific medicine."

It follows, therefore, that the promotion of the science and art of medicine as provided by the constitution of the association is, in effect, the promotion of the methods and the development of the means and the opportunities for relieving human suffering and thereby the adding of years and comfort to human existence. And true it is that to no class of persons is fraternal spirit and vigilant co-operation so essential as to those who are engaged in combating the insidious and tireless encroachments of the agents of human affliction and in relieving the abundant miseries which they beget. A transcendent service like this should be sheltered by the zeal of healthful personal and professional devotion and in no way depleted by the wiles of business ambitions. Those who regard the practice of medicine as a business enterprise should class themselves as brokers in a market of human affliction. To those who would infect the sound spirit of professional devotion and fellowship with the virus of sordid gain little heed need be given at the counsels of thoughtful men in the ranks of a beneficent profession.

The uniting of the medical profession of the United States into "one compact organization," making to the wise purposes already stated, is progressing in a decided maner, guided by the earnest activity and abundant experience of Dr. J. N. McCormack, of Kentucky. Already the constituent members of the organization number nearly 65,000, of which the fully constituted members are about 27,000, showing a substantial increase of the former class during the present year of about 10+% and of the latter about

* Published through the courtesy of the Journal of the American Medical Association.

12.5%. And when it is recalled that the regular medical profession of the United States numbers about 112,000 it is not difficult to understand that in the near future the medical profession of these states might easily be united into one compact organization. But how compact it may be and how enduring it may become will depend on the degree of wisdom exercised by its builders and on the measure of justice dispensed by those in control of its affairs.

"Justice without wisdom is impossible," said Froude. "Wisdom is only truth," said Goethe. Therefore, justice and truth are inseparable, say we all. The search for truth and understanding is the inherent right of all men, and they who inhibit the effort are for some reason (or pretext) opposed to justice and to knowledge. Obviously the consensus of men of widely separated habitation, of differently constituted environment and opinion, is a wiser and a safer guide in the conduct of important and comprehensive human affairs than is the consensus of men of contiguous localities. The judgment of the former class represents the concentrated wisdom of the whole, of the latter only that of a part of the country. The principle of utterance or of action relating to matters of common interest and general effect in organized bodies should, in all cases, be known and approved and be co-ordinated through the deliberate wisdom of broad constituted authority, rather than by the anxious thought or the hasty vocabulary of a few persons, no matter how experienced they may be or how wise they may be regarded as being. History not infrequently has demonstrated by untoward results the need of this rule of action in governmental and in other human affairs.

The lamented Lincoln emphasized the importance of this principle in no uncertain manner by the famous utterance, "The government of the people, by the people, for the people, shall not perish from the earth."

And in this relation it is well for us to keep in mind that a failure on the part of the responsible many, to plan and co-ordinate wisely the official acts of the few, often renders effeminate and inoperative the subsequent inhibitory efforts of those in established control.

Among the inspiring benefits provided by the constitution of this association is embraced the fostering of the growth and the diffusing of medical knowledge and its beneficence, throughout the various channels of human intercourse. The promoting of the growth and the diffusing of medical knowledge should appear with equal vigor to the people who experience relief and to those who contribute the products of medical enlightenment.

Every physician can contribute a definite share to the healthy growth and wise diffusion of medical knowledge and to its bounties. Those who strive in the workshops of medicine, the laboratories and the hospitals, more especially the former, have already bestowed a bountiful portion toward the attainment of this end. Scientific laboratory deductions, however, could not be regarded as final; they yet required the leavening proof from out the complex laboratory of the human body, as demonstrated by practical applications in the treatment of disease, to establish their worth. To the general and to the hospital practitioners of medicine belonged the duty of dispensing the fruits of laboratory research, and thus far so well has concurrent effort accomplished its purpose, that life's expectancy during the first forty years of existence has been advanced quite 30%. But following this period only a little advance in this regard has yet been made, and principally because of the differences in the nature of the diseases which afflict those of the earlier and of the later periods of life.

The present and prospective civil worth of the toll levied by disease on the wisdom and experience of mankind during the later period of life cannot well be estimated. But the physical sufferings of this period are largely the characteristic outcome of its peculiar diseases, many of which might be prevented and perhaps cured by means of progressive investigation and therapy related to a full term of years, and thus life's span becomes yet longer extended.

As just observed, every physician, if he will, can contribute a definite share to this pre-eminent undertaking. The opportunities of the country practitioner in this regard are of special significance, because of the knowledge gained through the differing effects of environment on the disease of the country and urban patients. Painstaking co-operative effort directed to the solution of the problems of disease can be made wherever two or more physicians are in mutual contact with each other and shall undertake the task.

MEDICAL EDUCATION.

It cannot be gainsaid that the comparatively few of the people constituting the medical profession of this country are tireless in their efforts to advance the scientific and practical status of medical knowledge. But what can be said regarding the great multitude of others of the people, referable to mutual response commensurate with the earthly blessings which they receive? As an earnest of the sentiments of those persons who give bountifully to beneficent ends, I quote from a comprehensive address delivered by President Keen at the annual session of this association, held here in June, 1900, and based on the United Education Report of 1898. President Keen presented to the audience the following startling facts regarding the comparative endowments bestowed on theological and medical schools for teaching (not foundation) purposes in this country. It was shown that each of the 8,000 theological students had the income of $2,250 provided for his instruction, and that each of the 2,400 medical students had the income of $83 provided for the same purpose. Also that of the 178 endowed chairs in teaching, only five related to medicine. Then we were solaced by the thought, "A hard beginning maketh a good ending."

In this address President Keen gave as his

opinion that the difference in the amounts of these endowments was chiefly in consequence of the "vicious methods of the conduct of medical teaching as represented in preparatory medical schools." And it is fair to say that many were of the same opinion. In view of this hypothesis, and of the fact that since the time of the report on which it was based up to the final one[1] of five years later, and notwithstanding that distinct improvement in the administration and the teaching in medical colleges had taken place, and broader laboratory avenues of well-known scientific outcome were in operation, still it does not appear that a sufficient rising in the tide of advancement was reached to influence satisfactorily the inclination of munificent givers. For, according to the report of 1903–4, each of the 7,400 theological students of 1904 had the income of $3,031 provided for his instruction, and each of the 27,000 medical students of that year had the income of $54 provided for the same purpose, thus showing a gain over the previous report in favor of the theological student of $781 per capita, and a loss to the medical student of $29 per capita, for teaching purposes.

ENDOWMENTS.

Substantially the benefit of $22,500,000 was available for the purposes of theological education as against the benefit of $1,450,000 for medical educational use at the time of the report of 1903. At this time, of the 153 theological schools 77 report endowments and 76 report no endowments. And of the 152 medical schools 19 report endowments and 133 report no endowments. Also five of the theological schools had endowments varying in amount from $853,000 to $1,525,388 each. Now, more than ever, are we impressed with the force of another expression, "Help yourself and Heaven will help you."

In view of this later increase in the difference of the incomes bestowed for direct educational purposes and under improved medical conditions it seems quite likely that opposing factors, more potent than first assigned, are extant. When, however, it shall happen that bountiful givers regard us in health as in acute affliction perhaps greater heed will be given to the wisdom of making larger medical educational gifts. Irreverent comment has hinted of another compelling influence, especially related to generous adult minds, embodying the notion that the hope and faith of celestial expectancy are more attractive than are the faith and outcome of terrestrial realization.

Whatever may be the reason for the continued paucity of medical endowment, I am not prepared to say, but I hope that substantial improvement will be secured through the convincing influence of beneficent subjective and objective lessons, patiently, discreetly and thoughtfully impressed by us on the public mind. Yet, confronting this hope, there appears an ominous specter pointing to the fact that only by laborious effort, chiefly supported by the medical profession, were the memory and brilliant services of the late Dr. Walter Reed meagerly characterized. Those who experienced the greatest blessings because of them gave the least to the care of those whom he loved most.

The simple, commonplace remark, "the promoting of friendly intercourse among American physicians," I regard as the most important announcement set forth in the opening declaration of the constitution of the association, looking to the "Promotion of the Science and Art of Medicine." For, without the stimulating and guiding support of professional good-fellowship in all that the term implies, discord and discredit are likely to delay or cripple the realization of this one great object in view.

THE JOURNAL.

I know of no agent so well-fitted to contribute to the fostering of the growth and the diffusing of medical knowledge and the promoting of friendly intercourse among American physicians as rightly falls to the lot of *The Journal of the American Medical Association*. A journal with a weekly circulation of over 50,000 and accounted as the utterance of many more than this number of the organized medical profession of the country may well be regarded in things of professional concern as the voice of the multitude proclaiming its will. Therefore, it is important that the tone and wisdom of its speech be in accord with the judgment of the great majority of our profession. I am inclined to believe that when the pages of our journal are the forum of temperate and instructive discussion of the policies of common interest to our membership greater impetus will be given to just causes and a broader scope to fraternal comfort among American physicians. One, however, cannot be reminded of *The Journal* without being impressed by the creative ability, the abiding energy and overtaxed assent of the editor, the Secretary of this Association.

I am deeply impressed with the belief that at this time the greatest danger to continued harmonious unity in the Association lies ill-hidden in the constituted expression, "to safeguard the material interests of the medical profession." It requires no special discriminating sense to foresee the devious interpretations which eager desire might willingly give to the phraseology of this declaration. Fortunately, however, no rendering of the language of this expression can be properly entertained which conflicts with that of the antecedent one, "the promotion of friendly intercourse among American physicians." However this may be, the following suggestive lines of Froude should not be overlooked: "Where all are selfish the sage is no better than the fool, and only rather more dangerous."

THE WAR AGAINST DISEASE.

The genuine products of completed organization of the medical profession are of infinite importance to the well-being of the country. The potent factors of common prosperity will be encouraged and protected; the hearts and homes

[1] Commission of Education, Department of the Interior, 1903–4, ii.

of the well-to-do and the hopes and hovels of the needy will each reflect, in joyous ways, the benefits of co-operative action in fixing the nature, overcoming the causes and lessening the burdens of disease. The war now under way against cancer and tuberculosis, two of the insatiable inflictions of humanity, can, along with that opposing ophthalmia, be waged with comprehensive rational designs and improved prospective results.

The broader the field of opportunity in this regard, and the greater the activity of the contest, the more bounteous will be the return and the greater a final victory. When, for instance, it is recalled that for unknown reasons the death-rate from cancer is slowly advancing in spite of intelligent, earnest opposition; that acquired tuberculosis yet adds 13% to the total death-rate; that unrestrained ophthalmia causes over 25% of the blindness from disease; that over 30% of the school children of New York, and perhaps of other large cities, suffer from defective vision, and that in 75% is their mentality impaired by causes yielding to curative measures of a simple and permanent nature, then, indeed, is the necessity for united action relating to control of human infliction emphatically demonstrated.

The alleviation and cure of such afflictions serve to lighten the burdens of public care, to lessen the tenantry of charitable and penal institutions and to lay the foundation of good citizenship.

A NATIONAL BOARD OF HEALTH.

The fact that communicable disease has no boundary restraints in the presence of unguarded human pursuits is quite as familiar to the lay as to the medical mind. Also that human indifference and human ignorance and established sectional state policy often contribute an unfortunate share to human distress is well known to the medical profession. It would seem wise, therefore, that interstate sanitary regulations should be established, thus affording even-handed opportunity of protecting interstate enterprise from the effects of concurrent disease. Duties of this nature and others of national sanitary importance can be properly met when an awakened sense of the need on the part of those controlling the affairs of the country shall invite the co-operation of our profession looking to the acquiring and preserving the best results, which wise statesmanship and wise sanitation can jointly secure.

A national board of health having in charge such things as properly fall under its consideration and action would be a national blessing of ever-increasing importance. But in this relation candor compels me to state that I find little encouragement for those of our profession who at the outset would demand a seat in the executive council at the head of the nation as an acknowledgment of professional capacity, or as a retainer for prospective service. Instead we and others laboring in mercy's cause should be willing to serve in allotted capacity as Jacob served for Rachel, with unostentatious patience, tinctured perhaps with cruel disappointment, but leaving the results of our labors as an earnest of our worth and of the reward which best befits it.

Not a little has been said in the near past regarding the possibility of securing national incorporation of the American Medical Association, with power to hold property and transact business anywhere in the United States. The gaining of such incorporation is no longer speculative, for within the last year several charters of similar scope to that framed by Judge Ray for us have been secured for other organizations. I am inclined, however, to hesitate in recommending a renewal of endeavor in this respect until assurance can be had of earnest, genuine effort on the part of all, looking to the securing of incorporation and also co-operation in the adjustment of the business matters essential to a completed consummation of the act. A policy which would contemplate the locating of the business affairs of the Association at Washington in the event of incorporation, I regard as hostile to the best interests of the profession and contributive to the impairment of fraternal peace.

MEDICAL LEGISLATION.

The enactment and enforcement of just medical laws is a matter of superlative importance. Fair and equitable relations, founded on uniform standards, should be established between the respective states regarding the requirements of medical education. Under this arrangement, fully qualified physicians going from one state to another would not be obliged to submit to annoying state board scrutiny concerning fitness to practice medicine. Since no unusual professional attainments are necessary to meet the exigencies of practice in any state of the Union, but little difficulty should be experienced in establishing a grade of educational requirement, permitting of practice though reciprocal comity.

The unwelcome thought arises at this time that, in the absence of equitable state reciprocity, one or more states not blessed with first-class educational opportunities might endeavor to protect their own interests against the professional encroachments of the graduates of first-class medical schools by requirements to practice of such character as not to merit serious thought on the part of the faculties of highly reputable medical institutions. It is difficult, however, to conceive that this idea can be more than a passing fancy, for how a course of this kind could receive the sanction of good judgment is not easily understood. Relative to competent practitioners of long standing who may desire to change their state environment, a greater difficulty attends a proper adjustment of their situation. It seems to me, however, that common justice requires that a form of examination should be given in these instances, which in its scope is measured by practical methods consistent with the experience of the applicant, rather than by one of modern requirement. For I am quite certain that if a member of the teaching faculty of a modern medical school were unexpectedly to find himself outside the halls of his own institution,

a creditable return through the enlightened channels prescribed by his catalogues for students, would be shadowed with great doubt and probably attended with humiliating disaster.

MEDICAL EDUCATION.

Beneath this opinion lies a thought pregnant with important professional responsibility relating to all those who have to do with regulating the requirements to begin the study of medicine. Should it occur to them that ideals may not everywhere be needed and that the object might be to meet the requirements of the whole country — a country yet comparatively new in professional opportunities and rewards for ambitious young men in a great part of its area? Should it occur to them that the coming into the field of action of vast business enterprises has begotten corresponding opportunities with less preparatory drudgery and expense and by greater prospective rewards than generally attend the practice of medicine? Ought they to keep in mind that the increase in educational requirements above a certain point has not resulted, at least in New York State, in a corresponding increase in medicine of those of the highest qualifications, but instead their comparative numerical status (21+%) in this and in other common respects has remained practically unchanged for the last ten years? Is it not possible, therefore, that many worthy and able young men who are less favored than their fellows have sidestepped because of the comparative hardships imposed by educational requirements and the uncertain and delayed rewards that attend earnest endeavor in the medical profession?

Whether or not the standard of medical education should be raised in this country to equal that of the old world is a matter concerning which honest differences of opinion are earnestly pronounced. While no one can consistently contend that knowledge is not power, yet the adjustment of more than a requisite amount of knowledge in the practice of medicine, to be sparse occupancy of many broad areas of this country, is a matter which for some time to come may concern the stern power of economics more than the needs of ideal culture. Possibly, therefore, those who are blessed with commendable professional dignity and with pleasing remunerative environment might willingly pause for a time while giving thought to the demands for professional care in broad necessitous surroundings.

The analytic work being done by the Council of Medical Education is mercilessly disclosing the comparative *status* of the medical schools in this country to the discredit of many heretofore differently regarded. The active manner in which the labor is carried on under the chairmanship of Dr. Arthur D. Bevan is creditable to the committee and to the cause in hand. Inasmuch as the standard of suitable preparatory medical attainment depends more on the capacity of a faculty to impart knowledge and beget character than it does on the phraseology of the curriculum the outcome of the committee's efforts is being watched with solicitous interest by all concerned in honest standards of moral and medical qualifications.

Apropos of the importance that the faculties of medical schools should lead the way to higher station in professional ethical conduct, both by precept and example, I am prompted to say that there appears to be no doubt that uncanny business instincts are encroaching in the reciprocal vulgar ways characteristic of lay methods not a little on the sacred domain of professional propriety. I am of the opinion that trespasses of this kind are chiefly the outcome of acquisitive intentions based on delusive self-seeking desires. The remedy for the cure of this unprofessional propensity rests largely in the hands of the faculties of medical schools. They should inculcate a high sense of professional honor in those who come under their tutelage. Ample instruction of medical students in the tenets of moral philosophy, as applied to the practice of medicine, and substantial disapprobation of offending practitioners by their colleagues will, in my judgment, hasten the reduction of this evil to a minimum.

In this glorious country of ours, "the will of the people is the law of the land." And in this bearing it is needful that we should act with good sense concerning our *personnel* in all matters which are of special interest to the commonalty, so as not to encounter the adverse activity of popular desire. In this connection it is important to know that in the United States there are about 84,000,000 people, the great majority of whom are capable of satisfactorily judging of the practical things of life relating to themselves as they come into thought. Also in the United States there are about 112,000 physicians who are eligible to membership in the American Medical Association, but of which as yet little more than one half are afflicted in any capacity with the organization. It logically follows, therefore, that a judicious estimate should be made of how the great majority of the 84,000,000 of people plus nearly half of our own calling would regard our intentions before venturing at all rather than prematurely to court defeat and corresponding loss of station. The question is *not* altogether what we think of ourselves and our causes, but the question *is* how we ourselves and our causes may be regarded by the people concerned and by their friends, to say nothing of the balance of our own profession. And, too, it should be kept in mind that it is not likely that general mutual accord will prevail in all matters of common interest which arise in organized bodies of men. In a humane profession appeals should be made to judgment, not to passion or prejudice. It is within the easy recollection of most of us that sturdy efforts were made by the united medical profession of a state in what was regarded to be a justifiable cause. Yet, as it appears, decided defeat was the outcome, because the majority of the interested people were not in harmony with the contention. This suggestive lesson should not pass unheeded, if experience and good judg-

ment are to become available assets in the conduct of the affairs of medical organization.

THE NEED OF HONEST DRUGS.

It is written that Oliver Cromwell, while fording a river with his army to attack the enemy, exclaimed, "Put your trust in God, but mind to keep your powder dry!" No less determined than Cromwell was, do many physicians now feel on account of the fact that their figurative powder (drugs) is quite apt to be worse than wet, being alarmingly defective in quality and fickle in strength. As an illustration of these facts, no evidence more convincing can be presented than that of the Health Department of New York City. This efficient department has for some time labored with discreet energy and with astounding results in this heretofore comparatively untilled field of interrogative scrutiny. That the crude drugs and standard preparations approved by the United States Pharmacopeia and prepared and exploited by reputable pharmacists should, in all instances, be found trustworthy admits of no denial.

It appears, however, from the reports of the Board of Health of New York City, on the analytic findings incident to the examination of crude drugs, tinctures, fluid extracts, etc., as compared with corresponding standards adopted in the United States Pharmacopeia, that reputable pharmacists have, because of commercial indifference or studied intention, not infrequently contributed to therapeutic misfortune through the quality and strength of their drugs. I will call your attention to only a few illustrations which are an emphatic earnest of the need of general scrutiny of the pharmaceutical part of our therapeutic armamentarium.

It is a matter of general knowledge that aconite is a drug of potent nature and in comparatively common use. Of this drug five of the thirteen samples analyzed were of the tincture and fluid extract of the root. Of the three specimens of the tincture one had 9% more, and of the remaining two 6% and 20%, respectively, less of aconitin in than the standard requires. The two samples of extract of the root had 13½% and 25½%, respectively, more aconitin in than is required. The remaining six samples were of the powered root which in no instance was sufficiently abnormal to call for admonition. The samples of belladonna showed, respectively, from 35% to 45% less of mydriatic alkaloids in the powdered extract of the leaves, 11½% less in the fluid extract of the root, 17% more in the tincture of the leaves and 47½% in the fluid extract of the leaves than is required by the United States Pharmacopeia. Powdered nux vomica was found to be comparatively worthless, but in the tincture and fluid extract was revealed an excess of strychnin above the required standard of 19% and 17%, respectively. In the tincture of opium was found, of morphin 7% to 13% more than the accepted standard of composition.

In 1-100 gr. tablet triturate of nitroglycerin was discovered only 1-1600 of a grain of the drug. It is said that this preparation of nitroglycerin was known by the manufacturers to be unreliable and, therefore, should not have been exploited at all or in a guarded manner. It is not difficult to foresee from the failing to secure proper response from the use of these or other tablets of uncertain strength that the substitution therefor of a fresh solution of the drug might result unfortunately, especially if the dose of the fresh preparation were of the same amount as was that of the tablet last given. I have in mind an instance of this kind in which the use of a fresh solution of strychnin caused a fatal result.

It further appears that of the first sixty-one samples of drugs examined by the health department, all of which "articles are of exceptional importance, most of them potent poisons, and all are represented by definite chemical standards in the Pharmacopeia," only about 28% of the whole number was considered good and 16% were so bad as to justify legal action. It is proper to say that the majority of the manufacturers, recognizing the awkward position in which they were placed, with a spirit of yielding opposition complied with the reformatory demands of the health department. This list of producers is small in numbers compared with those who are engaged in similar business in the United States, and, no doubt, present as favorable a picture of this class of the drug evil as can be drawn.

Nor is the aforegoing distress the only torment in pharmacy with which the medical profession has to contend. The idealized, savory products of pharmacy with which the market is cloyed are often quite as fickle in their nature and virtues as was a certain ancient queen of the Nile. Discreditable business thrift supplemented by co-operative professional contentment and convenient indifference, patronized by confiding and credulous people, yields princely returns for the diminutive cash and equivocal integrity invested in it.

Not all of those, however, engaged in the pharmacal trade are unworthy of the trust and confidence given to men in other avenues of business. Very many, indeed, thus engaged are as sincere and trustworthy in their business affairs as are the best of those in other undertakings. Therefore, the old and revered principle of common justice, while emphasizing the fact that every person should be regarded as being honest until the contrary is proven, should be kept in mind and action. Consequently, in our conduct of matters imbued with professional or business virtues, the resolution should be to estimate uprightness of character by the tenets of common justice, and not by preconceived notions hostile to the principles of established equity. Purposes thus graciously fortified command respect, and gain in strength because of opposition. The reverse, howeyer, will beget distrustful thought and may finally cause defeat. In this recital I cannot overcome the belief that we ourselves contribute a major share to the inception and success of many medicinal ventures

by our indifference or ignorance relating to savory prescribing and also by our thoughtless employment of proprietary medicines. Here, too, is a chance for medical teachers to instill proper notions regarding consistent ethical and therapeutic refinements.

When John Dryden wrote, "virtue is her own reward," he expressed a sentiment in keeping with the self-sacrificing spirit characteristic of the members of the Council on Pharmacy and Chemistry of the American Medical Association. I am creditably informed that these gentlemen are serving the profession and the people in this labor without the expectation of vulgar reward or the anticipation of special favor. I desire to commend their motives, approve of their work, and bespeak on the part of the profession an earnest support of all wise conclusions. Those who labor in a just cause without stipend are deserving of great praise; those, however, who serve for pay can only expect approbation.

But little less important than the preceding, in some respects, would be the careful scientific consideration of the therapeutic value of the abundant springs of our country. There is much, indeed, of special significance regarding their popular use which might well be garnered and put on a sound basis. A scientific co-operation with those who are in charge of certain baths possessed of traditional specific value might readily guide to improved conditions of significant importance to all those who seek relief. A country as rich as ours in these spontaneous endowments can well afford, in proper ways, to court the attention and support of the afflicted and to the decided advantages of all concerned.

THE MEDICAL PROFESSION IN CIVIC LIFE.

The sincere belief, on my part, that the outcome of professional governing policies of common interest in our affairs are practically alike in county or state prompted me, in a recent parting address to the united medical profession of the State of New York, to say: "The organization of the medical profession here and everywhere throughout the country contemplates the realization of more than the scientific advantages arising from personal contact and local co-operative thought. It should be regarded as an earnest that the medical profession intends to take an active and controlling part, if possible, in those affairs of civic life which relate to the well-being of the body politic. There should be no question regarding the status of the medical profession in all matters relating to the securing of pure food, pure drugs and wise public sanitation." Also it was said: "It would be sadly amiss, indeed, were I not to admonish you at this time, the opening of a united career, of the grave perils begotten by a spirit of paternalism which not infrequently is a pernicious by-product of organized power. The seductive and aggressive influence of this spirit often usurps and may inhibit that nobler, more enduring and beneficent spirit characteristic of common manhood and professional brotherhood. And it should not be forgotten that the greater and more extended is the membership of a fraternal body the greater and more extended are self-seeking desires apt to be. Consequently, the longer the chain of affiliation is the weaker it may become, for, as you already understand, 'no chain is stronger than its weakest link.' I pause to inquire, Is there any good reason to doubt that the medical organization of the nation might not respond to similar influences? Let us, however, cherish the belief that wise discretion fittingly stimulated by just conceptions of fraternal spirit will guide us securely along the pathway of increasing professional attainment and good fellowship to the end of useful life."

And, finally, when by the aid of Divine Providence, the medical profession of the United States shall have been made into "one compact organization" and impelled in dutiful desires only by the highest motives of professional purpose and of public welfare, no enlightened opposition will oppose its desires nor will irrational outcry, nor vagrant motives, find patient listeners or available foothold in the councils of the organization or in those concerned in the requirements begetting of public confidence and respect

Original Articles.

COINCIDENT EXTRA- AND INTRA-UTERINE PREGNANCY.

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Coincident extra- and intra-uterine pregnancy has been reported by both European and American writers, but is of sufficient rarity and importance to deserve attention. Parry [2] found 22 cases among 499; Schrenkh [7] 4 in 610; Weibel 1 among 40 extra-uterine pregnancies. So far as can be found, no case of this character appears in records of the Gynecological Service at the Boston City Hospital previous to the one reported at the close of this article.

In this instance, the exact condition was not appreciated at the time of the operation for the ruptured extra-uterine pregnancy; but it is consoling to find that many others have been in the same predicament and all acknowledge the great difficulty of diagnosis. According to Zinke's [1] statistics, a diagnosis of the extra-uterine pregnancy has been made in very few instances other than post-mortem, after the uterus was empty, or at the time of operation.

Although the first case of this nature was published in 1708 and the second about one hundred years later, Parry [2] apparently published the first series of 23 cases in 1876.

Subsequently, various articles have appeared, and the number of recorded observations has increased wonderfully during the past ten years. Weibel was able to collect data concerning 119, including the table of previous writers, and including one of his own; therefore his statistics

are the latest. Neugebauer, in the *Zentralblatt für Gynäkologie* No. 46, 1905, stated that he intended shortly to publish conclusions based on 129 cases, but I cannot find that they have yet appeared.

The best monographs on this subject are those of Zinke,[1] 1902; Bichat,[6] 1903; Simpson,[5] 1904; Weibel,[3] 1905.

To the work of Christer Nilsson [4] (1903) I have not had access, but it is commended by others. Weibel [3] considers only those cases in which both embryos have been alive at the same time, during some portion of the pregnancy. Superfetation is not considered possible in this connection by most investigators.

Although some writers have insisted on fine distinctions as to when coincident extra- and intra-uterine pregnancy could be said to exist, the classification of Simpson [5] seems to me most reasonable and simple. For convenience he calls this condition " compound pregnancy."

SIMPSON'S CLASSIFICATION.

Compound pregnancy, Class I. The woman becomes pregnant while carrying the dead products of an ectopic gestation.

Compound pregnancy, Class II. The ectopic and intra-uterine products of conception are both living at the same time.

(*a*) Ectopic gestation precedes the uterine.

(*b*) Ectopic gestation follows the uterine.

(*c*) Ectopic and uterine conceptions occur coincidently.

Of Class I, Simpson found 16 in his series, and Parry 22 in a study of 499 ectopic gestations. Under Class II (*a*), he includes all cases in which the extra-uterine ovum appears to have begun its development at least one month before the uterine. Only 3 were found.

He concludes, under Class II (*b*), that there is no positive proof that the ectopic ovum may become fecundated after the uterine, as difference of size is probably due to insufficient nourishment. In this he agrees with Weibel and others. In Class II (*c*), where the two ova seem to have been fecundated at the same time, he places 98 "recorded cases."

From the figures of Wiebel [3] this form of twin pregnancy occurs most often during the period between 25 and 30 years, which corresponds to the time of greatest frequency of normal twin pregnancy, according to the statistics of Kleinwächter.

Christer Nilsson's statistics (quoted by Weibel) make the period somewhat later (30 to 35 years), and he also claims that this abnormal condition of twin pregnancy is almost as frequent from 36 to 40 years. It is found about 3 times more often in primiparæ and has been considered primarily due to morbid changes in the reproductive organs, resulting from age or disease.

The general course of such pregnancies may proceed undisturbed, and there is at least one case on record where mother and both children survived delivery. Bleeding from the uterus may occur as in ordinary extra-uterine pregnancy and the intra-uterine embryo remain undisturbed. However, bleeding as a rule signifies a beginning uterine abortion or changes in the extra-uterine pregnancy. When both embryos are living at the same time, a disturbance of one or the other is apt to bring both pregnancies to an end. It is possible that there is some interdependence, and that an interruption of the intra-uterine pregnancy may result from the shock of the extra-uterine disturbance or that a uterine abortion may end the ectopic gestation, either mechanically or by altering its nutrition.

Cases are also reported in which the uterine abortion failed to disturb the ectopic ovum, and *vice versa*. Several writers (Wertheim, Christer Nilsson, Weibel) agree that the ending of the uterine pregnancy is less liable to affect the course of the extra-uterine, than tubal rupture or abortion to influence that of the uterine gestation.

In our own case it is impossible to say exactly what happened. The condition of the fetus thrown off by the uterus showed that it must have been dead for some days at least, and it seems probable that it perished before the tubal rupture took place.

Data concerning the uterine gestations is given by Weibel in 110 cases: 42 went to the ninth month; 32 were living at full term; 61 ended prematurely. Of these ending prematurely, 12 resulted from: death of fetus (9); extirpation of uterus (2); criminal abortion (1). In 6, the duration was not stated. In approximately one half of 95 cases, the extra-uterine pregnancy came to an end during the first four months, and although 28 extended into the ninth month, only 3 were saved by operation at the full term.

From the foregoing figures, it will be seen that the chance of the survival of the extra-uterine embryo is so small that it should not be considered for a moment when it comes to a question of saving the life of the mother and the uterine pregnancy.

The prognosis for the mother grows progressively worse as gestation advances. Not only is there constantly increasing chance of intra-abdominal hemorrhage and mechanical difficulties, both before and after uterine labor, but also the added risk of celiotomy. If, by any chance, the ectopic pregnancy is broken and the fetus becomes encysted, the uterine pregnancy may proceed without special danger to full term. Lithopedions have been carried for over thirty years without trouble, while in other instances, infection of the sac and abscess formation have led to a spontaneous discharge of its contents.

In a majority of the published records, the disturbance of one of the twin pregnancies, usually the extra-uterine, has ended the other. Of the cases reported before 1880, according to Bichat, about 40% of the mothers perished; but since that time, Weibel's figures show a mortality of only 20%.

To lay down any rule for the treatment of such cases is certainly impossible. Early diagnosis and sacrifice of the ectopic pregnancy seems to be the ideal treatment, as by this the greatest

danger to the mother is obviated and the normal pregnancy possibly spared.

If it is reasonably certain that the extra-uterine fetus is dead and become encysted, then, according to some writers, it may be permissible to wait. As it is impossible to be sure of this fact, operation, at least in the earlier months, offers the best chance for the mother. In the later months, it may seem best to wait, hoping for the death of the extra-uterine child and curtailment of the placental circulation before abdominal section. Uterine labor is apt to interfere with the abdominal pregnancy, either mechanically or by altering its blood supply.

Any pregnancy accompanied by peculiar pains or thickening of the appendages should be carefully watched, and it will be only by this means that we can make an early diagnosis. Even then, many will escape us, if we are to judge by the records of the past.

CASE.

S. Q. Twenty-nine years of age and single, was admitted to the Gynecological Service of the Boston City Hospital on the evening of Jan. 7, 1906.

She had enjoyed good health, and the catamenia had been painless and regular, except when pregnant, since their first appearance at fifteen years. The last regular period ceased on Oct. 30, 1905, and was regular in every respect. Some six to eight months previous to entrance she had an induced abortion.

At the time of admission, she considered herself about two months pregnant.

On the evening of Jan. 6, she was seized with sudden, sharp pain in the lower abdomen, which persisted. She vomited considerable during the night and felt chilly. Late in the afternoon of Jan. 7, she summoned a physician who at once sent her to the hospital.

When she reached the hospital there was no doubt as to diagnosis and my house officer gave an infusion of salt solution and adrenalin, as well as some strychnia and morphia.

Physical examination: A well developed and nourished young woman, with blanched cheeks and slightly coated tongue. The pulse rate was 120, slightly irregular, and of poor volume and tension. The heart action was rapid with sounds short and of fair quality.

The abdomen was distended, with tenderness most marked in the lower quadrants. Signs of a large amount of fluid in the peritoneum were present, and a slight, general rigidity of the abdominal wall. Vaginal examination showed the uterus to be slightly enlarged and the cervix soft, but not patulous. There was no bloody discharge, and nothing in the feel of the uterus differing from its condition in other ectopic gestations which I have seen. Nothing further could be made on account of the straining and rigidity of the patient on examination.

It was decided to operate at once, and on opening the abdomen by a median incision, the black blood gushed like a fountain, being under greater pressure than it had ever been my chance to see previously. Scattered over the intestines and in both flanks, large recent clots obstructed the view. They were bailed out with the hands and the outer third of the left tube found completely shattered, and surrounded by a moderately dense laminated clot, which was evidently the result of hemorrhages at least three or four days old. The portion of the tube remaining was filled with clot, and the broad ligament considerably damaged. In order to stop hemorrhage, it was necessary to sacrifice the ovary, which contained what appeared to be a single large ruptured corpus hemorrhagicum. After washing out the abdomen, it was closed without drainage. There were no old adhesions anywhere in the abdominal cavity.

The patient received a shock enema at the close of the operation. The pulse was 96, and later rose to 128, but the quality remained good.

On Jan. 8, a small macerated fetus came away from the vagina without pain or flowing.

Jan. 11, the hemoglobin was 60%; Jan. 15, 65%; Jan. 19, 70%.

Jan. 30, she was discharged. The uterus at that time was freely movable, in good position, and of normal size, with no induration to be felt in the pelvis and no vaginal discharge. The abdominal wound was firm. She still had the yellow skin which follows acute hemorrhage.

About six months after the operation, the patient reported herself in good health.

I am indebted to Dr. O. R. Mabee of the Pathological Department of the Boston City Hospital, for the following pathological report:

The specimens received are two in number,—a small fetus from the uterine cavity and the right Fallopian tube.

Gross examination.—The fetus measures 3.5 cm. in length, its neck is well formed, and all the branchial clefts are closed except the first. The eyes, ears and nose are well formed. The external genitalia are visible but the sex cannot be determined. (Fetus of about ten weeks.)

The tube measures 7 cm. in length and at its proximal end is 8 mm. in diameter. Its fimbriated extremity spreads out into an irregular funnel-shaped mass, the walls of which are thickened and the mucous membrane roughened by numerous shaggy tags of blood stained material.

Microscopic examination. — Sections made through the Fallopian tube at various points show the following conditions: In sections from the proximal and central parts the blood vessels are distended; the lumen contains a small amount of blood; the mucosa is intact and there is no evidence of inflammation, of decidual cells, or of chorionic villi. The muscular and serous coats are normal. The general picture presented by sections through the distal portion is as follows: The vessels are congested. The mucosa is torn, irregular in contour, and adherent to its surface are fibrin, red blood corpuscles and polynuclear leucocytes. The muscular coat in some areas is thickened and in others much thinned. The serous surface like the mucous has adherent to it fibrin, red blood corpuscles and polynuclear leucocytes. Some sections near the fimbriated end show numerous gland and tube-like remains of the ducts of Müller surrounded by smooth muscle fibers.

The following is a specific description of individual sections through the distal portion: At the fimbriated extremity many epithelial cells of the mucosa are flattened and beneath them are seen many large, pale, staining cells with vesicular nuclei (decidual cells). On the peritoneal surface in this region the changes are more marked.

Clumps of chorionic villi are seen. There are masses of large decidual cells scattered through the connective tissue beneath the serous layer and in the walls of the larger blood vessels.

DIAGNOSIS.

1. Uterine pregnancy (ten weeks).
2. Right tubal pregnancy (fimbriated extremity).

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THE BIER SUCTION TREATMENT OF TUBERCULAR SINUSES.

A REPORT OF SIXTEEN CASES FROM THE CONVALESCENT HOME OF THE CHILDREN'S HOSPITAL.

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DURING the past year I have had the opportunity to observe a great number of convalescent tuberculous cases at the Convalescent Home of the Children's Hospital at Wellesley Hills, and owing to the kindness of Dr. Augustus Thorndike I am able to report on a number of them.

It has always been a difficult thing to cause a sinus from a tuberculous abscess, complicating tuberculous disease of the spine, hip disease, tumor albus or tuberculous disease of the bones of elbow, wrist or ankle, to heal, following either spontaneous rupture or operation. In fact, after trying all the various special forms of treatment, none of which have seemed to hasten the closure of the sinuses, no attempt is usually made now beyond the necessary application of a dry sterile dressing as often as need be, according to the amount of discharge; and Nature is allowed to take her own time.

However, such abscesses are not always so situated that they can drain well from a purely mechanical point of view, especially if the patient is not an ambulatory one, and consequently they are never fully drained, but simply overflow when the contents of the abscess cavity becomes too much for it to hold. This condition is noted in cases of Pott's disease or hip disease with abscesses which are obliged to undergo frame treatment. These abscess cavities then need some assistance in draining, so as to give them and the focus of the disease an opportunity to heal.

These sinuses presented conditions, then, which seemed suitable for the application of the suction cup apparatus as described and used by Professor Bier, of Bonn, Germany. By the cup suction method the contents of such cavities are daily completely drawn off, thus removing the pus. This method creates a vacuum, this being its first and mechanical action, and, secondly, by reason of this vacuum causes a hyperemia, thereby stimulating the healing process.

The cups used in this series of cases were small circular ones of glass, about one and one-half inches in diameter and about two inches in height. The top end is tapered to fit a rubber tube with a rubber bulb. This bulb should have no valve. The cup is applied wet, the bulb being compressed at the time, thus creating a vacuum, which is of a great enough degree to cause the cup to stay in place.

In some cases the cup method was augmented by the Bier compression bandage, *i. e.*, in such places where it was applicable, as knee, elbow, hand or ankle.

The treatment was carried out daily for one hour at a time. At no time was the suction strong enough to cause pain. The cups were removed every few minutes to clean them, and to renew the vacuum. The compression bandage was not removed during the hour.

An individual card was kept of each case, showing the gain in weight, hemoglobin and the results of the treatment.

Some cases did well from the start, especially cases one and seven. Others did well, the sinuses closed, only to reopen, and especially in such cases as had the suction omitted and the compression continued. This was especially to be noted in cases four and six in which the sinuses would heal and reopen alternately. In these last two cases both suction and compression had to be omitted on account of the occurrence in each of considerable hemorrhage from the wounds.

Histologically there has been noted a general dilatation of the capillaries and lymph channels, and an increased migration of the white corpuscles.

It must be borne in mind, however, that the active treatment of the main focus of the disease, which is the underlying cause of the abscess formation, must be kept up so as to reduce the irritation and destruction of the diseased area as much as possible.

It was by these methods, then, that we hoped to show that at last we had found something which would hasten the closure of such sinuses. It must not be forgotten, however, that many of these cases had had discharging sinuses for long periods of time and were consequently in poor general condition, for it is true that such cases are the hardest to get up to the normal, or to create, without a very long course of treatment, any marked improvement in their weight, color-index or general health.

Several cases, including these in which the hemorrhage occurred, either lost ground in general condition or did not gain at all, but promptly improved again following the omission of the treatment, as especially noted in case three.

It was noted that at first there was a very considerable increase in the amount of the discharge, which usually later diminished as the suction was continued. Some cases, however, had a considerable increase in discharge which persisted through-

out the course of the disease and seemed to impair the general condition to such an extent that the treatment was discontinued.

The following list is a brief summary of the cases:

Case I. Boy; age seven. Hip disease with sinus. Duration of the disease, four years. Duration of sinus, eight days following incision and drainage. Suction one hour daily. Sinus closed in eight weeks. Gained about 5 lb. in weight. At discharge general condition was excellent. Hemoglobin 100%.

Case II. Boy, age two. T. B. hands and ankle with sinus in hand and two in ankle. Duration of the disease, one year. Duration of sinuses, two months following operation in hospital. Suction and compression bandage one hour daily. Ankle was swollen and indurated, with two discharging sinuses, and the right hand presented a thick, boggy, indurated swelling on dorsum with a discharging sinus. Treatment in this case was only carried out for about two weeks, for the parents wished the child at home. The treatment had apparently not improved the condition. The weight increased two pounds, but the hemoglobin remained at 60%.

Case III. Girl, age three. Pott's disease, hip disease with two sinuses. Duration of the disease, eight months. Duration of sinuses, two months. Suction one hour daily. Suction caused considerable discharge from the sinuses, and the child began to lose in general condition. The cupping was omitted after one month, and the child picked up again. The sinuses continued to discharge freely, but less than when the suction was used. Gained four pounds in weight, and at the time of leaving the hospital was having less discharge. The hemoglobin was 90%.

Case IV. Boy, age six. T. B. knee. Numerous sinuses. Duration of the disease, two years. Duration of sinuses, since erasion of the knee two weeks previous. Suction to sinuses and compression bandage one hour daily, beginning July 11, 1906. Leg in split plaster. Case showed a steady gain in weight from 40 to 47 lb. Hemoglobin remained at 90%. At first, the treatment seemed to do good, but by Aug. 10 the sinuses were nearly closed. During the treatment, on Aug. 17, however, the sinuses bled freely, especially on the application of the bandage. This was omitted, but the suction still caused hemorrhage, so they were both discontinued. The last note on December, 1906, was that the four sinuses still continued to discharge slightly. The child left the Home soon after the discontinuance of the treatment.

Case V. Boy, age seven. Pott's disease with sinus. Duration of the disease, three years. Duration of sinus, one and one-half years. Suction one hour daily. Plaster jacket. Up and about. Sinuses on the outer side of the left thigh in upper third from psoas abscess. This was a case of such general poor health that the child has never reacted well to any treatment, general or local. The sinus was under treatment for a period of about eleven months without any marked change. At one time the hemoglobin went as high as 90%, but is down again now to 70%. His weight varies from 30 to 35 lb. The treatment apparently had no marked effect.

Case VI. Girl, age 5. Hip disease with sinuses. Duration of disease, two years. Duration of sinuses, two months after operation. Two sinuses on the left thigh connecting with the hip-joint and with each other. The suction was carried out daily from May 8, 1906, to July 13, 1906, when her general condition became so poor that she was sent to the Children's Island for a change. She lost weight slightly, but managed to keep her hemoglobin up to 90%. She was the second case in which bleeding followed the use of the cupping, so that it was finally discontinued.

Case VII. Boy, age four. Hip disease with sinus. Duration of the disease one and one-half years. Duration of sinus, one month following operation on hip abscess. Gain in weight in five months, 6 lb. Gain in hemoglobin, 70% to 100%. Suction one hour daily. June 22, 1906, fair amount of discharge. July 27, 1906, discharge much less, hip not sensitive, up and about. Splint. Aug. 2, 1906, general condition good. Sinus practically healed. Discharged.

Case VIII. Boy, age three. Hip disease with sinuses. Duration of the disease, one and one-half years. Duration of the sinuses, four months, following hip disease. Sinuses in Scarpa's triangle and in perineum. Duration of treatment, five months. Gain in weight, 4 lb. Gain in hemoglobin, 70% to 100%. Sinus in Scarpa's triangle healed, but sinus in perineum still discharging slightly. This child's general condition was at all times poor, although every effort was made to improve it. In November he contracted pertussis and was discharged.

Case IX. Boy, age eight. T. B. hip with sinus. Duration of the disease, five years. Duration of the sinus, five years. Duration of treatment, two months. Gain in weight, 11 lb. Hemoglobin, 80% to 100%. Hip very sensitive from the first, with practically no motion. Discharge from the sinus profuse for five years. With the suction treatment this child improved well locally, the discharge diminished steadily after the first month, during which no marked change was noted, and at the time of his leaving the Home the discharge was very much diminished.

Case X. Boy, age three. T. B. knee with sinus. Duration of the disease, six months. Duration of the sinus, ten days following spontaneous rupture of abscess of the knee-joint. This case was treated for about six months in the Out-Patient Department, and at home by the daily application of the compression bandage. During all this time the child wore a split plaster, and walked about on the leg as before the onset of the disease. The decrease in pain and the increase in motion of the joint were marked, not even being interfered with by the development of an abscess involving the upper part of the knee-joint, which opened spontaneously three months after the onset of the disease. The treatment was continued as before, the sinus being covered with a sterile dressing. In June he was sent to Wellesley on account of his poor condition generally, and the suction treatment was begun, which resulted in a closure of the sinus sixteen weeks later. He now has about 15° motion in the knee-joint, but still continues to wear a knee splint for protection. His weight increased from 29 to 54 lb. in seven weeks.

Case XI. Girl, age two and one-half years. Osteomyelitis femur. Operated on Nov. 2, 1906. Sent to Wellesley and treatment was begun there with compression and suction. The left thigh presented an operation wound in its lower third on inner aspect, discharging profusely. Rubber drainage tube. Under suction and compression the wound closed rapidly, the drainage diminished, and the wound was closed by Dec. 27, 1906. There was moderate thickening along the lower one half of the shaft of the femur, not different apparently in degree from that usually observed.

Case XII. Boy, age three. Double T. B. knees, T. B. hip amyloid disease. Duration of the disease, one and one-half years. Duration of sinus about knees, fifteen months following incision of abscesses of both knees.

This case was about hopeless from the start, but the attempt was made in the hope that some of the dis-

charge could be stopped and the bad effect on the general condition diminished, for it is a fact that in these sinus cases the children are never so well as in other cases of the same nature, which may have abscess but which do not have discharging sinuses. There was profuse discharge from both knees, and also a large fluctuating area over the right hip. The liver was much enlarged, the abdomen distended and free fluid was present in the peritoneal cavity. The child was of course confined to a Bradford frame and bed. The hemoglobin rose from 50% to 70%, but he lost weight from 32 to 26 lb. The treatment apparently had no good effects, the child developing symptoms of T. B. meningitis, and was taken home.

CASE XIII. Boy, age nine. T. B. spine with sinus. Duration of the disease, four years. Duration of sinus, nine months following incision and drainage of a psoas abscess. Suction was begun on Sept. 5, 1906, at the Convalescent Home. At that time there was profuse discharge from the sinus which had persisted for nine months. Early in October, about five weeks later, the discharge was greatly diminished and the boy's general condition was much improved. He was up and about in a plaster jacket from the time of his entrance.

CASE XIV. Boy, two years. Periostitis tibia. Was admitted to the Convalescent Home nineteen days after his operation for periostitis of tibia. He presented at entrance a large granulating wound over the anterior surface of the right tibia with considerable discharge. Bier bandage one hour daily. At the end of five weeks the wound was healed, having closed in rapidly.

CASE XV. Boy, T. B. hip with sinus. Duration of the disease, five and one-half years. Duration of the sinus, two and one-half years. At entrance his hip was very sensitive, motion was limited in all directions and there was a discharging sinus on the outer side of the upper third of the left thigh. The discharge was moderate cup suction one hour daily. Ten days later there was very much less discharge, the hip was much less sensitive and the boy was up and about with his splint and was discharged home.

CASE XVI. Boy, age five. T. B. knee with sinus. Duration of the disease, one and one-half years. Duration of sinus, one year. This case had the compression and suction carried out daily for a period of five months. His gain was steady, both locally and in general condition. During the third month there was a marked increase in the amount of the discharge, accompanied by a fluctuating area on the anterior surface of the thigh in the upper part of the knee-joint. The compression bandage was omitted, but the suction continued, and at the end of four weeks this fluctuating area had disappeared. The discharge was steadily decreased and all the sinuses were healed at the end of five months. There was practically no motion in the knee-joint at any time. Gained 4 lb. in five months. Hemoglobin, 90%.

CONCLUSIONS.

By a study of this series of cases it is shown that in a number of them their condition was much improved generally and locally.

To be sure the conditions with which the children were surrounded tended to improve them in every way, but it can be definitely stated that these conditions alone would not have been enough to have caused them to do so well in view of our past experience with similar conditions, and without the use of the suction treatment.

Eight, or one half of the cases reported, were either wholly healed or markedly improved, generally and locally. In five the conditions were not apparently improved locally, but there was distinct gain in weight and color-index. Three cases lost ground to such an extent that the treatment had to be omitted. The improvement in their local condition was largely due to the cupping, seconded by the improvement in their general condition as a result of their hygienic surroundings, good and sufficient food and fresh air night and day.

The occurrence of hemorrhage was noted in but two cases, and was probably due to the rupture of a small vessel in the wall of the abscess cavity, or to bleeding from the granulations. In both cases the general condition was much below par. Cases of long duration were not so greatly benefited as those which had existed for a short period of time. This was probably due to less destruction going on in the main focus in the recent cases, or to a less firmly established sinus cavity. The effect on the cases of osteomyelitis and periostitis was marked, and resulted in a rapid convalescence.

The suction treatment, combined with the compression, where applicable, should be used as a routine measure in every sinus case.

The occurrence of hemorrhage, or failure in general condition, should be indication for its discontinuance, at least temporarily.

It will undoubtedly cause a stimulation of the healing process in the majority of cases. It is simple, easily applied and carried out at home and in the hospital.

THE PHYSICIAN'S RESPONSIBILITY IN THE TRAINING OF INFANTS.*

BY A. C. EASTMAN, M.D., SOUTHBOROUGH, MASS.

TWENTY-FIVE years ago diseases of infants and children were not treated as separate subjects in the medical schools, but were brought in as a part of general medicine. In other words, if a physician could treat an adult he could treat a child.

Gradually this idea has been reversed until now it might be said that any physician who can treat a child can treat an adult.

As far as children are concerned this is a result of the special study of their development and diseases, whereas in adults it is a result of a growing tendency to place treatment by drugs in its proper place, viz., as only one of the branches of therapeutics in general.

Diseases of children have been carefully studied as a separate subject, until, in the short time above stated, this department has reached the point where it stands on a par with the other branches of medicine.

In the cases of infants, splendid work has also been done in connection with their general development and especially their feeding, so that at the present time the general practitioner, as well as the specialist, is becoming educated to the

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proper methods of modifying milk and to the general principles of treating the diseases resulting from the use of poor food.

But it seems to me there has been, and still is, a failure to teach and practice one of the most important subjects in connection with a child's and therefore a man's development, viz., the education and training of the infant, especially during the first six months of his life.

The old controversy between heredity and environment must be brought forward again, only in connection with this subject it is also a case of instinct versus training.

Parents have had, and still have, the idea firmly fixed in their minds that a child is born with inherited characteristics, and that these characteristics must be considered from the very beginning of a child's life. They believe that because they themselves are nervous, or have weak stomachs, or some other " ill which man is heir to," therefore the child has inherited the same long list of troubles and must be treated accordingly, and as a result cannot be treated like other children. It is a significant fact, however, that these same characteristics diminish in importance in direct proportion to the number of children in one family.

Add to this the natural instinct of a mother to coddle and love her child and to feel that the slightest cry means that something is wrong, and immediately we have the sum total of the reasons for the failure to properly train an infant. On the other hand the extreme scientist steps in with his so-called " modern methods " and says the child is an animal and the maternal instincts must be thrown aside; that the child must be reared and educated according to laws and rules which under no circumstances should be ignored or neglected, and the result will be a perfect child. As a matter of fact both sides must be considered, and instead of ignoring the mother's instinct, it should be held in restraint and educated for its proper sphere, that of a wise and loving protector during these important months. The mother must be taught to consider the future welfare of her child, and the physician must respect the mother's instinctive love.

What is the outcome of heredity and instinct in relation to the future welfare of the child? Why are not these the best guides to follow? Simply because, although an infant is an animal and animals are reared by instinct, yet an infant is also a human being and potentially has the wisdom and intellect of a human being. Therefore, if instinctive love rules the training of an infant, in a very short time the infant with his potential human characteristics will begin to rule the maternal instinct. This means that a mother who rules her child by instinct alone puts herself on a level with the animals as far as methods of discipline are concerned; that is, she unconsciously recognizes only the animal in her child in spite of her protests against the word "animal" when scientifically applied. In so doing she also unconsciously forgets the higher intellectual faculties present in her child in a potential form, and it is a result of this mistake which allows the child's intellectual faculties as they gradually unfold to dominate the mere instinctive habit of the mother's mind.

In all special departments of education it is becoming more and more recognized that the earlier an individual starts the better are his chances. Therefore it is still more important that in the general education of an individual we should begin at the earliest possible time. It is my firm belief that this early date in general education is the day an individual is born.

When a baby is born it is a physiological necessity that he should cry in order to expand the lungs, but that does not mean that he is hungry. On the other hand having the natural instinct of an animal to associate cause and effect he soon recognizes that a cry followed by food means that to get food he must cry. The same rule applies to holding, rocking, or even playing with him. Association of ideas in connection with cause and effect soon leads to temporary habits and these in turn lead to permanent habits; and in the course of development we have the spoiled child who does not recognize a negative answer to his various wants. Some one has called a baby a bundle of habits, and this being the case it is our duty to make the habits good and serviceable ones. The habits started in infancy make the foundation for the other characteristics later in life, and may be the turning point on which the making or marring of higher faculties depends. Isn't it therefore of vital importance that these habits be formed under the influence of good training rather than of mere instinct?

The first requisite in systematic training is a careful physical examination, because if there is any physical defect, no matter how slight, it may be the one stumbling-block in the way of success. Apart from any abnormalities which are easily noticed there are two which must be especially looked for, viz., the condition of the tongue and of the genitals. It is not at all uncommon to find a baby to be tongue-tied and this alone will interfere with the nursing, and hence upset any attempt at regularity. Within the last six months I have had four babies who were tongue-tied and until this was relieved nursing was difficult and unsatisfactory.

In connection with the genitals it is my habit to examine every boy and by the end of the first week, either stretch the prepuce and pull it back, or if necessary circumcise him. In cases where the prepuce can be stretched and pulled back it is necessary to instruct the nurse, and also the mother, how to do it, and that it must be done every day as a part of the child's bath. After the first one or two weeks the prepuce will slip back easily and then the mother will have no trouble in considering it a routine duty. But if stretching is impossible then the infant should be anesthetized and a careful circumcision performed.

Invariably there will be found behind the glans penis a varying amount of smegma which, if left there, cannot help being in time a source of irritation. If left until the boy grows older the damage

has been done to the nervous system, and the effort at training the child has been greatly handicapped.

This is one of the most difficult parts of treatment to carry out as a routine measure chiefly because of the deep-sown prejudice against circumcision. Although it is a Jewish religious rite as far back as Old Testament times, the religious part is secondary, and there must have been a sound physiological basis behind it. In fact as far as is known it was practised by the Egyptians as an hygienic measure before it was adopted as a religious rite by Abraham. There is practically no race of men who are as chaste, as sexually clean, as the Jews, and it seems to me this is the simple explanation. The boys, as they grow older, do not have their attention drawn to that portion of their anatomy by the irritation of a long or sensitive prepuce, and consequently their minds are not saturated with sexual subjects as they approach puberty. If in addition to this, parents will drop much of their false modesty, as they are beginning to do, and in a sensible way explain the changes of puberty to their children, we will begin to solve some of the difficult problems in connection with sexual evils.

Apart from this side of the question the mere irritation due to lack of cleanliness during infancy is a cause, it seems to me, of much of the nervousness of older children which has been laid at the door of heredity. Irritable babies who are fretty and restless and do not sleep soundly at night gradually grow into more irritable and nervous children.

With girls it is just as important to instruct the nurse that during the bath the labia should be carefully bathed and the smegma removed. In both cases enuresis can often be avoided, and the child's nervous system will be given a very much better chance for normal development.

Apart from these more important, because more frequent, abnormalities we should correct as far as possible any conditions which may interfere with normal digestion or sleeping, so that we may now start with a physically sound baby and teach him good habits.

After his first bath he should be placed in his cradle and left there, only to be taken up for feeding, bathing, changing his clothes, and exercising. As to his feeding the nurse and the mother should be carefully instructed as to the absolute necessity for regular feeding, and by regular feeding they should understand that they must go by the clock. Five or ten minutes leeway in either direction soon grows to a half hour and in a short time the whole schedule is upset. If the baby cries make him wait, and if he is asleep wake him during the day, and before many weeks he will awake approximately at the right time for his feeding.

Why is this strict schedule necessary? Simply because we well know that if our adult stomachs are not used at regular intervals we soon have indigestion and loss of appetite, and far more is this true in the case of a baby's sensitive stomach.

Furthermore, if the mother nurses her child, regularity is absolutely necessary in order to keep her milk in good condition, as too frequent nursing diminishes the supply and increases the total solids, whereas too long intervals increase the proportion of water and decrease the total solids. Moreover, the mother's physical condition is of the greatest importance, and irregular nursing is a tremendous strain on her vitality. Too much stress cannot be laid on the necessity for regular nursing, and we will find it necessary to reiterate again and again to the mother why this is so absolutely important.

It is also necessary that the baby should not be allowed to take his food too rapidly, but at the same time should keep steadily at work while he is nursing. It is a good plan for the mother to hold the child over her shoulder and pat his back immediately after nursing and oftentimes in that way gas, which has formed in the stomach from too rapid nursing, will escape and so prevent discomfort and subsequent crying when he is put back in his cradle.

As to bathing and clothing in connection with training, it is simply necessary to keep the baby clean and dry. An infant should not be left to lie in a soiled and wet napkin, for chafing will surely be the result and thus again we have cause for restlessness and irritability as well as enuresis. There is also a tendency to put too much clothing on babies so that they are uncomfortable, and at the same time become more susceptible to changes of atmosphere. As a result instead of preventing colds which is the object of the extra clothing, in reality it makes them more liable to catch cold. At the same time the physical discomfort makes them fretty and cross and this adds another difficulty to the success of training.

A baby's nervous system demands quiet and physical comfort for its best development. As far as possible for his own sake as well as the mother's he should sleep in a separate room and under no circumstances be allowed to sleep in the bed with his mother. Also during the day, when awake, it is better to train him to entertain himself as much as possible. Do not give him too many toys at one time and do not allow him to be constantly entertained by an admiring audience. The latter part of the afternoon before his six o'clock feeding is the best time for parents to play with him and give him his exercise. Then after his feeding he will be ready for a good night's sleep. After his last evening feeding, which is usually either at nine or ten, according to his age, he should not be awakened until six in the morning. During the first six or eight weeks he will usually wake himself, and should be given one feeding about one or two o'clock, according to the time he wakens; otherwise, unless you are positive that something is wrong, he should be left in his crib and compelled to cry it out. If this requirement is rigidly enforced from the first night after his birth, it is surprising how quickly he learns his lesson, and then as he grows older the parents will not be so familiar with the his-

torical night parade and its accompaniments. This is also an additional reason for the infant sleeping in a separate room when possible, for in that case it is not so great a trial to the mother when she is obliged to hear him cry.

This uninterrupted night's sleep is especially important as an acquired habit, for the older he grows the less he sleeps during the day, and then the quiet sleep necessary for a normal nervous system must come at night. Moreover, the mother needs her sleep in order to keep strong and well, and this she can have if only she will begin early to train the infant.

For exercise the mother should be instructed to rub the baby once or twice a day, usually in connection with his bath and when put to bed for the night, and also he should have a certain amount of freedom in the use of his legs and arms.

And now the mother says, "The baby will hurt himself crying if not picked up." Not only will the baby not hurt himself, but gradually if made to cry it out he will recognize the futility of crying. The earlier he learns this lesson the better for him and for the mother. The longer it is delayed the more difficult it becomes. "But he will rupture himself," the mother says. Rarely does this happen if a proper binder is worn, but if it does happen, the hernia should be reduced and the skin folded over it and strapped with adhesive plaster and the training can be safely continued. Again the mother will argue that the child is not strong enough to be allowed to cry, and yet that same mother would not question the necessity for keeping a weak premature baby quiet in his crib in spite of his crying. The weaker the baby the more necessity for quiet, is an absolute rule, and the louder he cries the stronger he is, may be taken as an axiom.

As the child grows older and it is necessary to change the intervals of feeding or to give up the night feeding, such changes should be carried out with a firm hand, and when once made, the child should not be allowed to go back to the previous schedule, unless because of illness and by the physician's orders.

Sleeping out of doors should be a part of the daily routine in the infant's life after the first few weeks, varying according to the natural physical condition of the infant.

These absolute rules of living are especially important and necessary during the first six months of life, because if carried out faithfully during that period the habits have obtained a good start, and furthermore after the sixth month the individual characteristics begin to be more prominent and the physician's responsibility is turned over to the parents.

What then is our responsibility as physicians? It is to take a more personal interest in the training of infants, thus making it more systematic, and not leaving it to the various eccentricities of an ignorant nurse or to the misguided instinct of the mother.

Too long it has been the habit of physicians to forget the child as soon as he is born and devote their attention to the mother. With our present knowledge of asepsis properly carried out, the mother is bound to stand every chance of normal convalescence, and if anything goes wrong it will speedily be brought to our attention. But the child cannot speak for himself and we cannot take things for granted as far as the intelligent care of the nurse or mother is concerned.

With the exception of a few specially trained nurses the vast majority of obstetrical nurses are ignorant along these lines, and the natural instinct of the mother is surely not sufficient to carry out such training,

Not long ago I had a graduate nurse on a confinement case who came to me at the end of a week and asked me to go into more detail with my instructions, because, although I had taken it for granted that she understood the ordinary rules of regular feeding, etc., in reality she said she was absolutely ignorant as to the first principles of training infants.

It is our duty to take nothing for granted until we find the nurse or mother knows these fundamental principles, and even then we must keep an oversight of the infant during these first few months. Only in this way can this important branch of preventive medicine be made a recognized part of a child's development.

We owe it to the future generations that they enter active life without the handicaps so long made a stumbling-block to their normal development. This may be medical suicide but even so it is preventive medicine and along this line the greatest advances are being made, and we should be proud to do our share in making the medical profession progressive, broad and honored.

THE TREATMENT OF RIGID FLAT-FOOT. EXCISION OF SCAPHOID.

BY ARTHUR T. LEGG, M.D., BOSTON.

By the term "rigid flat-foot" is meant that type of flat-foot in which, after the falling of the longitudinal arch has taken place, and especially the downward displacement of the scaphoid bone, alterations in the shape of the tarsal bones have taken place, making impossible by the use of plates the correction of the deformity or the relief of pain due to the body weight resting, to a more or less extent, on the displaced scaphoid.

It should be understood that this type of case does not include the cases of rigid valgus, due to static errors, in which there is no displacement of the scaphoid. There is, however, in the former class of cases, valgus, secondary to the falling of the longitudinal arch.

Rigid flat-foot is almost always a result of congenital flat-foot, the patients having always noticed that their feet were flat but not having experienced much discomfort until after puberty, when, by their increased weight and the body weight resting more or less on the scaphoid, much pain is experienced. It is not to be understood that all cases of congenital flat-foot will become rigid; many cases of congenital flat-foot go through life with a perfectly flexible foot.

Interesting to note in connection with congenital flat-foot is the fact that it is often hereditary. In two cases operated upon by the writer other members of the family were afflicted with the same congenital deformity, one having a father and two brothers, the other a father and a brother.

There are several operations described for the relief of rigid flat-foot. Nearly all these have been advocated for the relief of both rigid flat-foot and rigid valgus, while but one, that of excision of the scaphoid, is, to the writer's mind, applicable to rigid flat-foot.

Forcible manipulation under complete anesthesia, manually or by the use of the Thomas wrench, is an excellent procedure for the early cases of rigid flat-foot where much change in the shape of the tarsal bones has not taken place, preventing the raising of the scaphoid and the correction of the secondary valgus. This procedure is followed by retention of the foot in the corrected position in plaster, followed by the use of plates.

Where marked changes, however, have taken place in the tarsal bones, and the scaphoid is well down, it is impossible to restore the foot to its normal position by this method.

Ogston's operation, or the ablation of Chopart's joint. — The objects of this operation are to denude as much of the cartilaginous surface of the astragalo-scaphoid joint as possible, to place the foot in the proper position and to secure immobility by pegging the bones together. The operation is spoken of by Professor Ogston as highly successful in relieving both pain and deformity, but other operators have met with but little success.

Mr. Hare's operation is a modification of Ogston's whereby he dovetails the astragalus and scaphoid together in place of pegging.

Sir William Stokes describes removing a wedge from the head and neck of the astragalus. This procedure is not sufficient in all cases to restore the shape of the arch.

Larabrie's operation, or cuneiform resection of the tarsus. — Larabrie removed the whole of the scaphoid, the head of the astragalus, a portion of the internal cuneiform and a corner of the cuboid in a very severe case of congenital flat-foot in which the sole was convex, the dorsum concave. The bones, after the deformity was rectified, were united by wire sutures. The result was a useful foot.

Gleich's operation, or transplantation of the posterior part of the os calcis. — Gleich, in order to raise the posterior pillar of the arch, makes an oblique section through the posterior part of the os calcis, and having divided the tendo Achillis slides the posterior fragment forward and downward. The effect of this operation would be, according to Sir William Stokes, to raise the heel and thus lead to troubles similar to those which follow the wearing of high-heeled shoes.

Trendelenburg's operation of supra-malleolar osteotomy. — This operation was devised primarily to correct the valgus resulting from poor results in Pott's fracture, the idea being that by dividing the bones of the leg above the ankle and turning the distal fragment in, thus creating a bow leg, the body weight would be directed upon the outer border of the foot. A number of operators have used this procedure for the correction of rigid flat-foot, but it seems hardly rational to the writer, in that the deformity resulting from Pott's fracture is in the ankle joint itself, whereas in rigid flat-foot the change is in the sub-astragaloid joint. The operation in cases of rigid flat-foot would thus make a compound deformity.

Allison's report of a case in which this operation was performed for a marked rigid flat-foot well illustrates the inadvisability of performing a Trendelenburg osteotomy for this type of case. The patient after the operation was more crippled than before. He, after unsuccessful manipulation, excised the scaphoid, correcting the deformity and giving absolute relief to the patient.

Excision of the scaphoid. — The removal of the scaphoid was probably first performed by Richard Davy and Golding Bird. The objects of the operation are to remove a wedge from the inner side of the foot, thus allowing the correction of the arch and the relief of pain by the removal of pressure. They report several cases in which pain was immediately relieved and the arch restored in most cases.

The operation is a simple one, consisting of making a curved incision over the scaphoid, the convexity directed downward. After laying back the skin and soft parts, the scaphoid is grasped with lion forceps and enucleated by freeing its articulations with the tarsal bones. By making the incision with the convexity downward, room is gained by which the scaphoid is more easily freed from its articulation with the cuboid. After the removal of the scaphoid, the foot is corrected and put up in plaster in the corrected position. The writer has, in the majority of cases operated by him, sutured the remaining joint capsule of the head of the astragalus to that of the internal cuneiform in order to better hold the corrected position. The tendons of the peronei, and in some cases the tendons of the tibialis anticus, extensor proprious hallucis and extensor longus digitorum should be divided in order to fully correct the valgus.

The after-treatment in these cases is of great importance. The foot should be kept in plaster for three to four weeks, being sure the foot is held in the corrected position. The plaster may now be omitted and the patient allowed to wear a shoe, holding the position of the foot by a properly fitting plate. The patient may have to use crutches for a week or so after the omission of the plaster on account of the pain from the recent operation and in order to become accustomed to walking on a foot in a new position. Massage, manipulation and exercises designed to strengthen the foot are of great benefit in the after-treatment. The plates may be omitted in five to six months.

In the Orthopedic Department of the Carney Hospital thirteen operations of excision of the scaphoid for the relief of rigid flat-foot have been

performed. From the results of these cases, one to five years after operation, the writer draws the following conclusions:

The pain is relieved in all cases.

The deformity in most cases can be corrected by excision of the scaphoid and the tenotomies previously mentioned.

In one case operated upon by the writer the deformity was so extreme that the sole of the foot was convex and the dorsum concave, as in the case reported by Larabrie. Here the excision of the scaphoid was not sufficient to correct the deformity. The writer believes, however, that the deformity could have been entirely corrected if a portion of the cuboid had been removed.

The flexibility of the foot cannot be regained. More or less change has taken place in all the bones of the tarsus, and excision of the scaphoid can in no way regain flexibility already lost. From this viewpoint we cannot promise a cure.

That this operation weakens the foot as some claim, the writer does not agree. The scaphoid in the normal foot may be said to act as the keystone of the longitudinal arch, but displaced it fails to act as such; so by removing it and having the internal cuneiform take its place, the writer believes the arch is really strengthened.

THE TREATMENT OF CHRONIC ANTRUM DISEASE.

BY RICHARD H. JOHNSTON, M.D., BALTIMORE,

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In the classification of antrum disease it is well to separate empyema of the antrum from chronic sinusitis; the former indicates pus in the antrum without much involvement of the mucous membrane, the cavity acting as a reservoir. In the latter form the mucous membrane is inflamed and often covered with granulation tissue or may present polypoid formations. In simple empyema the cause is usually found in a diseased tooth, especially a root, which may be covered by the mucous membrane of the antrum or may project into the cavity itself.

In true sinusitis the infection comes from the nose and is usually found in an attack of "grip" or one of the other infectious diseases.

It is obvious that the treatment of the two varieties must be entirely different. In empyema the diseased tooth must be gotten rid of and drainage obtained through the alveolar process; recovery is generally prompt after the extraction of the cause. It is easy to see that no treatment through the nose will cure if the pus formation is due to dental conditions. In view of this fact it might be well to subject the patient to a careful examination of the teeth before undertaking the treatment of the antrum. Sometimes a tooth is diseased and examination by a competent dentist does not reveal it. A very instructive case, in which examination of the teeth showed nothing, is reported by Moure. A patient with bronchitis and suspected tuberculosis was sent to him for nasal examination. He could find nothing abnormal in the nose or mouth; the teeth all seemed sound. Transillumination gave opacity of the right antrum. A proof puncture yielded pus. Before undertaking the treatment of the case, he directed the patient to a dentist who reported all teeth sound. Moure, however, insisted on the extraction of a tooth which he thought might have some connection with the antrum. The dentist extracted the tooth under protest; the roots were found diseased and in ten days the pus had entirely disappeared and the bronchial cough with it. Such cases are very significant and should make us careful in the choice of treatment. With the x-ray the position of the roots with reference to the antrum can easily be obtained and may be of great value in treatment.

During the past few years many papers have appeared on the treatment of chronic antrum sinusitis and many opinions expressed as to the best and most conservative operation. Leaving out the radical operation which is, of course, the best because healing following it is the quickest, the choice narrows down to treatment through the mouth or through the nose. Grayson discards the intranasal route as unscientific and unnecessary; he prefers to gain access to the cavity through the alveolar process after extracting a tooth. He claims that this conservative method effects many cures. The adherents of the intranasal operation are just as enthusiastic over their method. Both operations can be performed under local anesthesia and in the office. Both are attended with some shock, the latter being the more severe. I am inclined to think that both operations have their place in the treatment of chronic antrum disease. When a diseased tooth is the cause of the pus formation, the mouth operation is undoubtedly proper. I had occasion to observe this fact some time ago. In a patient with pus in the antrum, intranasal treatment, of several months' duration, benefited but did not cure. Great difficulty was experienced in keeping the hole in the antrum open, and each operation to secure good drainage was a source of great shock to the patient. Finally an x-ray picture was made and showed that a root of the second bicuspid tooth projected into the antrum. The tooth was extracted, drainage made through the alveolar process and recovery was rapid. The importance of a careful examination of the teeth was clearly shown in this case. Where the pus formation has extended over a period of years and the patient is old — sixty years or more — I believe the alveolar procedure is the better. Such cases do not give a very favorable prognosis as to permanent cure, and, with a tube in the cavity, the patient is enabled to keep it clean and is made fairly comfortable for the remainder of life. In such cases the shock of the intranasal operation is much greater. In all other conditions the intranasal operation is undoubtedly better and, in my opinion, should be tried in all cases before resorting to more radical measures. Many instruments have been devised for this method of operating, some of

them very ingenious. After trying a certain number of them, I came back to the chisel and mallet for making the opening into the antrum and the cutting forceps for removing the bony pieces. Recently I have tried the electric trephine for cutting into the antrum and consider it the best method I have employed. It is quick, certain, causes little hemorrhage, gives a perfectly round hole and is practically painless. It enables one to do a quick operation — much quicker than with other instruments — and thus save the nerves of the patient. Because of the speed of the motor, the laceration of the soft parts is reduced to a minimum.

The operation as I perform it is as follows: after the application of cocaine, 10%, and adrenalin, 1 to 3000, the anterior end of the inferior turbinate is removed with the conchotome or with scissors and snare. If the conchotome is used, as much of the turbinate is bitten off as may be necessary, care being taken to get as near the insertion of the bone to the superior maxilla as possible. With the scissors a cut is made along the insertion of the bone for about half an inch; the snare is introduced so that the wire passes along the incision in the bone and the canula is below on the floor of the nose. The snare is then drawn tight and the turbinate cut through. I do not find it necessary to remove as much of the turbinate as in operations with other instruments. The trephine slides under the turbinate, so to speak, since it cuts obliquely. After the removal of the turbinate, if the patient is much shocked, I postpone the second stage of the operation for a few days. If the patient is in good condition, I enter the antrum immediately with the trephine attached to a number 6 Victor transformer. The trephine cuts in an oblique direction which is a distinct advantage in making a long, round opening. With such an instrument, thickness of bone does not need to be considered and the opening can be made on a level with the floor of the nose. A guard attachment surrounds the trephine except at the cutting end and prevents injury to the soft parts from the rapidly revolving shaft. If a larger opening is desired, the trephine is withdrawn, the bony piece removed, the instrument applied at another place and the current again turned on. A perfectly smooth hole is made and it is not necessary to use forceps to remove the bony pieces. The bone comes out in the cutting end of the trephine. With the Victor foot piece, the current can be made and broken at will. The trephines are of various sizes and large or small holes can be made at the will of the operator. Very little pressure is made on the trephine when it is cutting through the bone; the moment that it enters the antrum, the current is broken and it is powerless to do harm. For ease of execution and quickness of action, the trephine cannot be excelled. Patients do not object to it as they do to the slow and more clumsy cutting instruments. After cutting into the antrum, the curette is introduced and the cavity cleaned out as well as possible. It is then irrigated with sterile, normal salt solution. From time to time if pus continues to form, the curette is used and a 10% solution of nitrate of silver instilled. The patient is instructed how to pass a tube into the cavity which is washed out daily one or more times with mild antiseptic solutions. This method of treatment will cure many cases. If the opening closes before pus ceases to form, the trephine is again used with little inconvenience to the patient. I do not believe that strong antiseptics have much place in the treatment of chronic antrum disease. I have gotten the best results with occasional curetting and persistent washings with mild solutions.

Medical Progress.

PROGRESS IN PATHOLOGY.

A CRITICAL REVIEW OF VARIOUS METHODS EMPLOYED FOR ISOLATING TYPHOID BACILLI FROM STOOLS.

BY JOSEPH. H. PRATT, MD., BOSTON.

I. Media devised to check the growth of colon and liquefying bacteria.
- (*a*) Carbolic acid media.
- (*b*) Riedel's iodine trichloride gelatine.
- (*c*) Rawitsch-Stcherba's naphtol gelatine.
- (*d*) Hammerschmidt's creosol bouillon.

II. Media devised to produce colonies of characteristic size or form.
- (*a*) Holz's medium.
- (*b*) Elsner's medium.
- (*c*) Klie's low-percentage gelatine.
- (*d*) Hiss's plate media.
- (*e*) Piorkowski's urine gelatine.
- (*f*) Krause's urea gelatine.
- (*g*) Capaldi's gelatine agar.
- (*h*) Kraus's glucose glycerine agar.

III. Media devised to produce colonies of characteristic color.
- (*a*) Noeggerath's medium.
- (*b*) Gasser's fuchsine agar.
- (*c*) Marpmann's media.
- (*d*) Uffelmann's methylene blue gelatine.
- (*e*) Phenolphthalein media.
- (*f*) Roux's artichoke medium.
- (*g*) Neutral red media.
- (*h*) Wurtz's litmus-lactose agar.
- (*i*) Kashida's litmus urea agar.
- (*j*) Chantemesse's litmus-lactose agar.
- (*k*) v. Drigalski-Conradi's litmus-lactose agar.
- (*l*) Endo's fuchsine agar.

IV. Enrichment methods devised to favor the growth of typhoid bacilli and to inhibit the growth of colon.
Caffeine media.
- (*a*) Roth's bouillon.
- (*b*) Ficker and Hoffmann's method.
- (*c*) Reischauer's agar.

Malachite green media.
- (*d*) Loeffler's media.
- (*e*) Lentz and Tietz's method.
- (*f*) Nowack's agar.
- (*g*) Peabody and Pratt's method.

V. Chemical precipitation devised to separate bacteria from fluids.
- (*a*) Vallet-Schüder's method.
- (*b*) Reischauer's method.

VI. Biological precipitation devised to agglutinate and separate typhoid bacilli from fluids.
- (*a*) Windelbandt-Schepilewski's method.
- (*b*) Chantemesse's method.

VII. Methods based on motility of B. typhosus in fluids.
(*a*) Ali Cohen's method.
(*b*) Reischauer's method.
(*c*) Gabritschewsky's method.
(*d*) Kleine's method.
(*e*) Hayashikawa's method.
(*f*) Cambier's method.

On Oct. 16, 1881, Gaffky [40] isolated Bacillus typhosus in pure culture from the spleen of an individual dead of typhoid fever. That was the first time this micro-organism was ever grown on artificial media. Three years later he reported that he had cultivated the typhoid bacillus from the spleens of 13 cases. He did not claim to be able to demonstrate the presence of the bacilli in stools. Pfeiffer, [115] in 1895, was the first to make this assertion. For the diagnosis he depended upon the appearance of the colonies on agar and the invisible growth on potato. Merkel and Goldschmidt, [98] Karlinski [67] and Wiltschour [152] believed that they could find typhoid bacilli in the stools without difficulty. The tests used by these investigators did not suffice to distinguish typhoid from colon bacilli. Until the introduction of the glucose fermentation test and litmus milk, or litmus whey, it was not possible to differentiate typhoid bacilli from certain varieties of colon and allied bacilli. Chantemesse and Widal,[19] Petruschky,[114] Theobald Smith,[141] Wurtz,[157] Péré,[111] Germano and Maurea,[44] Capaldi and Proskauer [15] all called attention to the different action of B. typhosus and B. coli on carbohydrates. So great was the activity in this field of research that in 1895 Lösener [91] was able to collect references to 689 articles dealing with the bacteriological diagnosis of Bacillus typhosus.

A great number of methods have been devised for isolating typhoid bacilli from the stools. Wathelet [149] and others showed that the results of earlier investigators were erroneous and that the chance of obtaining typhoid bacilli from the stools by the use of ordinary gelatine was very small. Wathelet [149] examined 600 colonies that presented on gelatine plates the appearance of B. typhosus and found that only 10 of these were typhoid colonies. It should be remembered that B. coli was not discovered by Escherich until 1885 and not for ten years from that time were the difficulties of distinguishing B. typhosus from B. coli generally recognized. The colon bacillus is so much more vigorous than the typhoid that if a tube of bouillon is inoculated with a large number of typhoid and a very small number of colon bacilli, in twenty-four hours all, or nearly all, the typhoid bacilli will have disappeared. (Lösener.[91]) In 1896 Roux stated that it was impossible to isolate B. typhosus in the presence of colon bacilli.

I. MEDIA DEVISED TO CHECK THE GROWTH OF COLON AND LIQUEFYING BACTERIA.

(*a*) *Carbolic acid media.*

Chantemesse and Widal [19] (1887) used a carbolic acid gelatine for isolating typhoid bacilli from the stools. This was prepared by adding four or five drops of 5% carbolic acid to 10 ccm. of gelatine. The chief value attributed to the carbolic acid was its inhibitory action over the bacteria that liquefy gelatine. Holz,[62] Dunbar,[29] Lösener,[91] Mathews [96] and many others obtained unfavorable results with this method. Kitasato,[72] Holz,[62] and also Dunbar [29] found that the amount of phenol used by Chantemesse and Widal [19] was sufficient to prevent the development of B. typhosus. It is now known that carbolic acid checks the growth of typhoid more than of colon bacilli. Thoinot [144] the same year sought to isolate typhoid bacilli from the River Seine by adding 0.25 gm. of pure carbolic acid to 100 cm. of the water, and from this inoculated gelatine plates. Péré [112] and Vincent [148] added carbolic acid to bouillon in their attempts to isolate Eberth's bacillus. Lösener [91] obtained negative results with carbolic acid bouillon. Working with feces to which a large number of typhoid bacilli had been added, he found that B. coli and allied bacteria grew luxuriantly. Only in rare instances did he recover the typhoid bacillus. Parietti [107] advised the addition of definite amounts of hydrochloric acid and carbolic acid to culture medium. This restricted the growth of typhoid bacilli more than of colon bacilli and hence was discarded. Vincent [148] incubated tubes of phenol bouillon at 42 ° C. He admitted that by this method the typhoid bacillus could not be separated from B. coli. Remy [124] devised a complicated medium containing carbolic acid.

(*b*) *Riedel's iodine trichloride medium.*

Riedel [126] claimed that typhoid bacilli grew in gelatine containing one part of iodine trichloride to 850 parts of medium, while all other micro-organisms failed to grow in a dilution of 1:1600 of iodine trichloride. Lösener [91] could not confirm these observations.

(*c*) *Rawitsch-Stcherba's α naphtol gelatine.*

Rawitsch-Stcherba [121] employed α naphtol 0.1% in gelatine. According to Lösener [91] this method is valueless. Reischauer [122] found that a 2 pro mille solution of salicylic acid inhibited completely the growth of B. coli, but allowed B. typhosus to develop. His attempt to devise a satisfactory medium for typhoid diagnosis ended in failure.

(*d*) *Hammerschmidt's creosol bouillon.*

Hammerschmidt [50] claimed recently that a solution of creosol destroyed colon bacilli but did not injure typhoid bacilli. Bouillon containing 2.5% liquor cresoli saponatus is inoculated with a fecal suspension. After twenty-four hours v. Drigalski-Conradi plates are inoculated. (*Vide infra*, v. Drigalski-Conradi medium.)

II. MEDIA DEVISED TO PRODUCE COLONIES OF CHARACTERISTIC SIZE OR FORM.

(*a*) *Holz's potato gelatine.*

This was an acid gelatine prepared from the fresh juice of raw potatoes. It was claimed that on this B. typhosus formed colonies that were

characteristic. To hinder the development of liquefying micro-organisms 0.05% of carbolic acid was added. Grawitz [46] introduced a new procedure. The stools were frozen for twelve to twenty-four hours. They were then thawed and cultures were made on the potato gelatine. Failure to eliminate contaminating bacteria resulted, for the reason that B. coli and related micro-organisms resist freezing and thawing as well, if not better than B. typhosus. Germano and Maurea [44] by means of Holz's [62] medium isolated B. typhosus a few times. Dunbar,[29] Elsner [30] and Lösener [91] concluded that the so-called characteristic typhoid colonies were due to the inhibitory action of carbolic acid. Sometimes, as Dunbar [29] observed, the development of colon colonies is delayed, and in that case they cannot be distinguished from typhoid colonies.

(*b*) *Elsner's medium.*

Elsner [30] in 1896 modified Holz's [62] potato gelatine by replacing the carbolic acid by 1% potassium iodide. The typhoid bacilli formed small refractive colonies, looking like drops of dew, that were easily recognized. This was the first method for differentiating colonies of typhoid and colon bacilli that possessed any practical value. By means of it Elsner [30] isolated typhoid bacilli from the stools in 15 out of 17 cases. Pollak,[118] working in von Jaksch's clinic, was able to recover typhoid bacilli by Elsner's method from the stools in 19 out of 20 typhoid cases he examined. Jemma,[63] from Maragliano's clinic, used Elsner's method with success. He obtained B. typhosus from the feces of 30 out of 33 cases. Mark Richardson [125] isolated typhoid bacilli by this procedure in 19 out of 55 stools. The bacteriological diagnosis was made in 10 of the 13 typhoid cases investigated. Sterling [142] obtained positive results in 41 (66%) of 63 stools. In the second and third week 31 examinations were made and 87% of these were positive. Horton Smith [140] examined the stools of 3 typhoid patients on or before the seventeenth day and in each, at the second examination, typhoid bacilli were found in the stools. Of 20 observations made during the later periods of the disease only one gave a positive result.

Brieger,[12] Chantemesse [16] and Lazarus [80] claimed they obtained excellent results with Elsner's medium, but their results cannot be accepted, as they failed to prove that the micro-organisms they isolated were typhoid and not colon bacilli.

Later observers found that Elsner's medium inhibited the growth of typhoid bacilli. In fact, it prevented the development of many of the typhoid micro-organisms. Grimbert and Besson pointed out another serious objection. Bacteria present in feces frequently caused liquefaction of the gelatine, and this vitiated the results.

(*c*) *Klie's low-percentage gelatine.*

Loeffler [90] had at one time in his laboratory a certain nutrient gelatine in which the typhoid bacilli grew luxuriantly. The colonies possessed projections of unequal length which clearly distinguished them from the colon colonies. The cause of this peculiar growth was not at that time understood. Later it was shown by W. Rosenthal [129] and Klie [73] that these remarkable colonies were due to the soft consistence of the gelatine. Klie [73] used a low percentage (2.5–3.3%) gelatine and on this the typhoid bacilli formed characteristic spreading and thread-forming colonies. He admitted that the colon bacilli sometimes formed similar colonies. Baginsky,[5] while studying cases of cholera infantum, had noted colonies with peculiar ramifying outgrowths not usual to B. coli. Probably the medium was of reduced consistence. With Klie's medium it was necessary to keep the plates at a temperature below 22° C. in order to prevent the gelatine from melting.

(*d*) *Hiss's plate media.*

Hiss [59] in 1896 devised a plate medium composed of 1% agar, and 2.5% gelatine, 0.5% Liebig's beef extract, 0.5% sodium chloride and 1% dextrose. It was made 2% acid to phenolphthalein. Typhoid bacilli formed in this medium light colonies "with irregular outgrowths and fringing threads." He also employed a semi-solid glucose medium which was used in tubes. This contained 0.5% agar and 0.8% of gelatine. In a tube of this the typhoid bacillus produces uniform turbidity at 37° C. within eighteen hours. The colon bacillus does not give this clouding and forms gas from the dextrose. Stroddart invented a similar tube medium composed of 0.5% agar and 5% gelatine.

Hiss [60] later reported that by his method he had been able to isolate B. typhosus in 45 out of 108 cases. Of 19 febrile cases at the New York Hospital he recovered B. typhosus from the stools in 17, that is in 89%.

In 1902 Hiss [58] published the description of simpler media for differentiating typhoid and colon bacilli. The one recommended for the practical examination of typhoid stools consists of 1.5% of agar, 1.5% of gelatine, 0.5% of Liebig's extract of meat, 1% of dextrose and 0.5% sodium chloride. No correction of the reaction is necessary. One or more loopfuls of the stool are transferred to a tube of bouillon or sterile water. With this suspension 5 or 6 plates are inoculated and poured into Petri dishes. The typhoid colonies have the characteristic appearance described.

Higley [57] isolated typhoid bacilli by this method from the feces in 20 out of 21 cases.

Orton and Pratt [106] have seen Proteus colonies on Hiss's medium that closely simulated typhoid colonies.

(*e*) *Piorkowski's urine gelatine.*

In 1896 Piorkowski [117] introduced a medium containing either 10% to 12% gelatine or 2% of agar and in which beef infusion was replaced by 0.5% peptone urine after the method of Heller. Krause found it was useless for typhoid diagnosis. Piorkowski [117] in 1899 published the description of an improved method. He used a combination of Rosenthal's [129] 3.3% gelatine and Heller's [54]

peptone urine. He claimed that typhoid bacilli formed on this, colonies with characteristic wavy hairlike projections.

Unger and Portner [146] examined the stools of 31 cases and found the typhoid bacillus in every case; sometimes in pure culture. The findings of Piorkowski [117] were also supported by Schütze [139] and Mackenna.[94] Other observers found that some species of B. coli formed similar colonies. (Wittich,[154] Bischoff and Menzer,[10] Hayaschikawa,[51] Peppler,[110] Clemm,[21] Gebauer,[43] Herford [56] and others.) All agreed, however, that Piorkowski's urine medium was of aid in isolating B. typhosus from stools. It was difficult to work with it in summer as the gelatine became fluid above 22°. The employment of urine was also an objection. Weil [150] attempted to do away with these defects by using instead of gelatine and urine a mixture of potato juice and beef infusion to which was added 0.75% of agar. On this medium typhoid bacilli formed characteristic colonies with wavy outgrowths. Krause [77] was unable to confirm the claim of Weil.[150] Mayer used urine after it had been inoculated with a culture of Proteus vulgaris. With the urine of individuals on a high proteid diet he was not able to prepare a satisfactory medium. Krause [78] thinks this was due to the high percentage of sodium chloride present in such urines. Krause [78] found that only 2 of 80 different urines examined were suitable for the preparation of Piorkowski's urine gelatine. Klinger [74] called attention to the danger of the plates being ruined by liquefying bacteria which are not uncommon in the feces. Furthermore, the composition of the urine gelatine is not constant, and hence there is no possibility of comparing results. (v. Drigalski-Conradi.)

(*f*) *Krause's urea gelatine.*

Krause [77] recommended an agar gelatine medium containing 2.5% urea and of 0.3% acidity.

(*g*) *Capaldi's gelatine agar.*

In 1896 Capaldi [14] advocated a medium containing 2% of agar, 1% of gelatine, and 1% of glucose or mannite. The surface typhoid colonies are flat, homogeneous and lighter than the colon which are thicker and more granular. He isolated B. typhosus from the stools several times. According to Hiss this medium is of practical value, although Capaldi [14] admitted that similar colonies might be formed by other micro-organisms.

(*h*) *Kraus's glucose glycerine agar.*

Kraus [76] (1900) used glycerine agar containing 2% glucose, and claimed that with this medium he was able to isolate B. typhosus from the stools of all the typhoid cases he examined, 4 in number.

III. MEDIA DEVISED TO PRODUCE COLONIES OF CHARACTERISTIC COLOR.

(*a*) *Noeggerath's medium.*

Grancher and Deschamps [45] used Noeggerath's [102] medium which contains a mixture of aniline dyes. They claimed that the typhoid bacillus could be distinguished from other bacteria by the color of the colonies. Holz,[62] Gasser,[41] and Germano and Maurea [44] found that the medium could not be used for this purpose. The color of the colonies was influenced greatly by slight variations in the mixtures of the dyes, in the nutritive substances, the reaction, the presence of air, etc. (Roth.)

(*b*) *Gasser's fuchsine agar.*

Gasser [41] for recognizing typhoid colonies depended upon the amount of decolorization of an agar containing fuchsine. This method was soon proved to be useless.

(*c*) *Marpmann's media.*

Marpmann [92] devised media containing reducible dyes. Lösener [91] found that in these the typhoid and colon bacilli produced colonies of similar appearance.

(*d*) *Uffelmann's methylene blue gelatine.*

Uffelmann [145] proposed the use of an acid gelatine colored with methylene blue. For differentiating typhoid from colon bacilli Dunbar [29] found that it was "*nicht eine Erleichterung, sondern eine Erschwerung der Aufgabe.*" Robin [127] mixed bouillon with methylene blue. He claimed that in this typhoid bacilli could readily be differentiated from colon bacilli.

(*e*) *Phenolphthalein media.*

Phenolphthalein was used as an indicator in fluid media by Abba,[1] Ramond,[120] Graziani,[47] and Gautié,[42] and Merrieux and Carr.[99] Phenolphthalein media have recently been recommended by Zielleczky,[158] Omelianski,[105] and Wolff.[155]

(*f*) *Roux's artichoke medium.*

Artichokes were used by Roger [128] and their decoction by G. Roux.[134] Colon colonies are yellowish on this medium and the typhoid colonies are colorless.

(*g*) *Neutral red media.*

Rothberger [132] found that in neutral red agar typhoid and colon bacilli could readily be differentiated. In the case of the typhoid bacillus no change in the color occurs, but with B. coli there is developed a beautiful canary yellow with a greenish fluorescence. He prepared a neutral red agar containing 0.3 gm. glucose and 1 ccm. of an aqueous saturated solution of Ehrlich's neutral red added to 100 cc. of neutral agar. A higher concentration of neutral red checks the fermentation of glucose.

Oldkop [114] improved the medium by using only a 0.3% agar. This had the advantage that fluorescence and decolorization of the neutral red begins within sixteen to twenty hours at 37° C. Czaplewski [24] prefers a neutral red gelatine to the neutral red agar.

FitzGerald and Dreyer [37] have shown that an important factor is the reaction of agar or glucose agar. They employ a 3% lactose bouillon,

to which 0.5% of a 1% watery neutral red has been added.

Grünbaum and Hume [48] modified MacConkey's [93] bile-salt agar by the addition of 1% of ½% watery solution of neutral red. Surface colonies of B. coli are crimson and can easily be distinguished from the yellowish white typhoid colonies. Reischauer [122] does not speak favorably of this medium.

(h) Wurtz's litmus-lactose agar.

Wurtz [157] in 1891 devised a medium containing lactose and litmus. The colon bacilli ferment lactose with the formation of acid, while typhoid bacilli do not act on lactose. For this reason the colon colonies became red while the typhoid had a bluish hue, and hence could be readily picked out.

In 1894 Mathews,[96] working in Professor Sedgwick's laboratory at the Massachusetts Institute of Technology, employed a modification of Wurtz's medium in examining suspected water. He added 1 ccm. of the water directly to the litmus-lactose agar and plated it in the usual manner. Lösener [91] found Wurtz's method unsatisfactory for the examination of stools. A few colon colonies caused a reddening of the entire plate. v. Drigalski and Conradi [28] showed that failure to obtain constant results was due to the fact that Mathews [96] did not realize the importance of surface inoculation.

(i) Kashida's litmus urea agar.

Kashida [69] modified Wurtz's litmus lactose agar (*vide infra*) by the addition of 1% urea. For differentiating colon bacilli he depended not on the acid reaction, but on the subsequent alkali production, which results from the action of B. coli on proteids. The alkali reaction is hastened by the addition of the urea to the medium. The red color produced in about sixteen hours by B. coli is changed to a blue in twenty-four hours. The typhoid colonies and the medium surrounding them undergo no change of color.

(j) Chantemesse's litmus-lactose agar.

In 1901 Chantemesse [17] advocated a new method. Inoculations were made on agar containing carbolic acid. Surface colonies that resembled typhoid were transferred to a litmus lactose medium. If the micro-organisms grew characteristically in this the agglutination test was performed. The following year Chantemesse [17] simplified his procedure by adding the lactose and the litmus to the carbolic acid agar. Petri plates were prepared and the surface of the solidified agar was inoculated. A series of 5 or 6 plates was used for each test.

(To be continued.)

THE King of Spain has conferred upon Dr. Gutierrez, the physician in attendance upon the Queen of Spain in her recent confinement, the title of Marquis San Diego and the Grand Cross of the Order of Isabella the Catholic.— *British Medical Journal.*

Reports of Societies.

THE AMERICAN SURGICAL ASSOCIATION.

REPORT OF MEETING HELD AT WASHINGTON, D. C., MAY 7, 8 AND 9, 1907.

ABSTRACT OF THE PRESIDENT'S ADDRESS, BY DR. DUDLEY P. ALLEN, OF CLEVELAND, OHIO, ENTITLED "THE TEACHING OF SURGERY."

IN this most interesting address DR. ALLEN goes briefly over the ground of both good and bad methods of teaching surgery, summarizing his paper as follows:

The purpose of this paper is to urge for the training of surgeons, first, thorough and broad instruction; second, prolonged hospital residence and post-graduate study; and third, the establishment of some standard of attainment which must be reached by men to gain them general recognition by the profession. If these ends be attained, the community and the general profession will not long remain in doubt as to the men who are deserving of their confidence and support. Such a standard would do much to protect the public from incompetent men, and to place in the hands of capable surgeons those facilities which they alone are able to utilize to the best development of their profession and the best interests of humanity.

ABSTRACT OF PAPER ON "SPINAL ANESTHESIA," BY PROFESSOR KÜSTER, OF MARBURG.

PROFESSOR KÜSTER, in this very interesting paper, dealt particularly with the drug known as novocain as a spinal anesthetic. He presents his conclusions based on about 300 cases of spinal anesthesia induced by this drug. His results have not only been most satisfactory, but most convincing to him, that in operations upon the lower extremities and, in fact, in operations up to the umbilicus, spinal anesthesia is justifiable. He also believes it very suitable for examinations and for the introduction of instruments. Although he has frequently gone above the line of the umbilicus when using novocain, he finds that it sometimes is necessary to induce general narcosis.

It has been Küster's experience that patients during operations under this method feel absolutely no pain, and suffer almost no after-effects. There is, however, generally a feeling of sickness and desire to vomit, but, on the average, at the end of an hour and a half the action of the anesthetic will be over and the patient will begin to experience genuine sensations of pain.

Some patients, who during the anesthetic experience motor paralysis, later assert that they still feel a sensation of weakness in their legs, which, although it does not prevent their walking, makes them limp a little. After a few hours the power of movement is completely restored. It is noteworthy that sensation more quickly returns than does motion.

The principal ill-effect following lumbar anesthesia is headache, which appeared in 14% of Küster's first 200 cases. He states, however, that this can be readily relieved by puncture of the dural cavity and the withdrawal of about 10 cc. of fluid.

The author has only once seen pneumonia follow this anesthetic, and it is noticeable that in this case a general narcosis was finally necessary. He therefore believes the fact that pneumonia seldom or never follows spinal anesthesia is one of the most powerful arguments in favor of its employment.

Abstract of DR. JOHN B. ROBERTS' (Philadelphia) paper on

CONTINUOUS PASSIVE HYPEREMIA IN DELAYED UNION OF FRACTURES AND IN HASTENING THE CONSOLIDATION OF FRACTURES.

Dr. Roberts called attention to the fact that continuous hyperemia, produced by a rubber bandage carried around the limb above the seat of fracture, had a tendency to cause the formation of callus in cases of delayed union of fractures. During the use of the rubber bandage calcium salts, phosphorus in some form, and tonics were to be used. The patient was to be encouraged to live as much as possible in the open air and placed in circumstances where he would be happy. The method is a simple one, but efficacious when the delay in union is not due to entanglement of the fragments in the muscles so that correct apposition cannot be obtained. Where there is such a mechanical impediment to union, incision with readjustment of the relations of the soft tissues and the bone is necessary. Fixation with nails or staples can then be employed, and continuous hyperemia used as an adjuvant. It is probably best to have the resection wound healed, if possible, before using the congestion method.

Dr. Roberts had also employed continuous hyperemia in the treatment of recent fractures of the extremities with the hope that consolidation would thereby be hastened.

When the author first proposed this method of treating delayed union about twelve years ago, he thought it was novel, but subsequently found that Helferich had used it previously. Years before Helferich had employed the rubber bandage for this purpose; Nicoladoni had made the same suggestion when discussing a mode of producing local congestion which had been used by von Dumreicher in ununited fractures.

Abstract of Dr. Robert W. Johnson's (Baltimore) paper on

RESECTION OF THE SOUND FEMUR IN GIGANTISM AND ASYMMETRY.

Dr. Johnson suggests the shortening, by operation, of sound femora in order to decrease height, or make even the legs of those suffering from shortening due to previous fracture or other cause.

His proposal is as follows:

After the patient has accepted the operation with a full knowledge of its possibilities, under the most rigid asepsis and careful constitutional building up, the surgeon should cut down on the femur at the junction of its middle and lower third, and from that region excise from two to two and a half inches from the shaft, then bring the proximal and distal ends together by chromicized catgut, silk or silver wire; then, dressing the wound with or without a catgut drain, encase the limb from toe to pelvis in plaster of Paris, so to remain until union becomes firm. Without infection the limb should unite in about ten weeks.

Dr. Johnson does not propose, in cases of performing this operation for excessive height, operating on both femora at the same time, but suggests an interval of at least three months between the operations.

Abstract of Dr. Frederick Kammerer's (New York) paper,

REMARKS ON A CASE OF TEMPORARY RESECTION OF BOTH SUPERIOR MAXILLÆ (KOCHER) FOR NASO-PHARYNGEAL TUMOR.

Dr. Kammerer reports the case of removal of a fibroid tumor of the nasopharynx by temporary resection of both superior maxillæ after the method of Kocher. This method consists in separating the alveolar processes of both superior maxillæ with a chisel in a horizontal direction, beginning in each anterior opening of the nares. Both superior maxillæ and, if necessary, the entire soft palate, are then divided in the median line, after which the alveolar processes can be forced to either side, opening up the nasal cavity after division of the mucous membrane lining its floor. This method has been fully described by Lanz in 1893.[1] It not only opens up a passage of such size that the largest tumors can be removed *en masse*, but it has the additional advantage of bringing into view the origin of the tumor at the base of the skull or the anterior surface of the upper vertebræ, thus enabling thorough removal of the same.

In the case reported the patient had already undergone an attempt, by the Chassaignac-von Bruns method at the hands of another surgeon, at removal of the tumor.

Dr. Kammerer performed the operation in 1904. Several months ago he examined the patient and could find no recurrence of the growth. No injury resulted to the upper row of teeth, and there was no deformity in the upper jaw.

The great advantage Kocher's operation possesses over the other osteoplastic methods is the slight ultimate deformity it causes, the line of suture through the upper lip being the only resulting disfiguration.

Abstract of Dr. J. M. T. Finney's (Baltimore) paper on

A NEW METHOD OF RHINOPLASTY BY MEANS OF ONE OF THE FINGERS.

Dr. Finney reported two cases of reconstruction of the nose by means of the ring finger. In both cases the bony support of the nose, including the septum, was entirely destroyed; the integument remained but was retracted and distorted. Instead of the usual prominence of the nose, in each case there was a depression.

The method employed in making use of the ring finger was as follows:

After complete removal of nail and matrix the dorsum of the finger up to the distal end of the first phalanx was denuded of skin. For about the distance of 1 cm. the entire circumference of the tip of the finger was likewise denuded of skin, leaving exposed the end of the distal phalanx. All bleeding was stopped. The skin covering the nose was freed from its attachments without making any external scar. The skin of the nose was then stretched carefully and thoroughly, in order to give as much integument as possible for the new nose. Next, the soft parts were freed from the nasal process of the frontal bone within the nose by means of a knife passed through the nasal opening. The inner surface of the skin forming the nasal opening was denuded on the inner side in the middle line so that a raw surface might be opposed to the denuded surface of the dorsum of the finger, which was now inserted into the nasal opening, until the tip of the distal phalanx rested upon the nasal process of the frontal bone. Sutures passed through the free border of the tip of the nose and the edge of the skin over the dorsum of the first phalanx held the finger in place. Raw surfaces were now in opposition so that it was possible to obtain a new blood supply for the finger at the tip and dorsum. The skin covering the palmar surface of the finger, which was to form the inner lining of the nose, remained undisturbed. After about two weeks, during which time the hand had been held in position by adhesive strips and plaster-of-Paris bandages, the finger was disarticulated at the metacarpophalangeal joint and left for another week. At the end of this time the tissues in the middle line over the nasal spine of the superior maxilla were split and

[1] Deut. Zeitschr. für Chir., vol. xxxv.

the finger flexed at right angles at its proximal phalangeal joint. There was then inserted into this opening the free end of the first phalanx, which was held there by stitches through the soft parts; this phalanx formed the columna of the nose, the second and third phalanges proving a very satisfactory support for the dorsum.

Later on simple plastic operations under cocaine were performed to improve the appearance of the columna, which was too large.

The nose is freely movable from side to side, bone not having been opposed to bone.

Dr. Finney's first case was operated upon in 1902. He has lost track of this patient but on last report the operation had proved most satisfactory.

His second patient was a young woman of sixteen years of age, upon whom he operated some six months ago. He presented photographs showing the improvement in her appearance.

Dr. Finney then briefly reviewed the literature on the subject of reconstruction of the nose by means of one of the fingers.

Abstract of DR. CHARLES H. MAYO'S (Rochester, Minn.) paper on

THE TREATMENT OF THE POSTERIOR CAPSULE OF THE GLAND IN THYROIDECTOMY DEVELOPED FROM 375 OPERATIONS FOR GOITER.

The physiologist, in expanding our knowledge of the thyroid and associated ductless glands, has shown the necessity for greater care and changes in technique in the surgical treatment of goiter.

The early loss of the thyroid prevents mental and physical development, and the total loss of its function in the adult causes myxedema; this latter condition is well known and the surgeon avoids producing it.

The tetany which follows operation for goiter we know to be from injury or removal of the parathyroid epithelial bodies, which are located posterior to the thyroid gland.

By preserving the posterior capsule of the thyroid gland in operations for goiter we save the parathyroids and avoid much of the danger of injuring the recurrent laryngeal nerves.

Abstract of DR. GEORGE TULLY VAUGHAN'S (Washington) paper on

ANEURISMAL VARIX: A CASE OF PULSATING EXOPHTHALMOS. TWO CASES OF ENORMOUS DILATATION AND ONE CASE OF MODERATE DILATATION ON THE CARDIAC SIDE OF THE WOUND.

DR. VAUGHAN reported a case of pulsating exophthalmos probably caused by communication between the internal carotid artery and cavernous sinus, treated by ligation of the internal carotid artery near its origin. Death resulted from cerebral anemia. He also reported three cases of aneurismal varix with dilatation of the vein on the proximal or cardiac side of the point of communication between the artery and vein, and discussed the causes of the dilatation which occurred where it would least be expected to occur.

Abstract of DR. OSCAR H. ALLIS'S (Philadelphia) paper on

GUARDED VERTICAL TRACTION IN ITS APPLICATION TO THE REDUCTION OF CONGENITAL DISLOCATIONS.

DR. ALLIS calls attention to the method of horizontal traction upon the extended femur, stating that its adoption is based on the principle that dislocations of the hip occur from violence exerted upon the extended limb, and the teaching of the early surgeons that the chief obstacle to reduction lay in the resistance of the muscles.

To overcome this resistance Sir Astley Cooper resorted to blood-letting, emetics and the compound pulleys. Surgeons, in attempting to restore the congenitally dislocated hip, have resorted to prolonged traction and tenotomies with only trifling encouragement. Tenotomy leaves so much unaccomplished that Lorenz abandoned it and resorted to rupture of all resisting structures. He then reduced his cases, often with extreme difficulty, by means of horizontal traction.

The obstacles to reduction after rupture of the muscles must lie in the ligaments and fasciæ which cannot be torn. The chief difficulty lies in the iliotibial band, which in experimental work resists all efforts at extension, even after the muscles are cut. To cut this band as an adjuvant to efforts at reduction would be but a temporary makeshift, as it is one of the chief dependencies after reduction for a useful limb.

Dr. Allis therefore resorts to vertical traction. In this position the head of the femur lies directly below the socket, and the obstructing muscles, fasciæ and ligaments are relaxed. By means of a lever, traction is applied to the vertical femur, and to guard against over-action from such advantageous force, a spring balance is placed between the knee and the short arm of the lever. In young children he applies about twenty pounds of traction for fifteen minutes and then unhooks the apparatus and attempts reduction. This he does by raising the flexed limb vertically, and when it has reached the level of the socket he abducts and presses the head inward by using the thumb of his unoccupied hand. If the reduction is easily accomplished a fixation dressing is applied. If not, a second series of traction exercises is resorted to. The apparatus used permits of every motion that will be likely to meet with resistance. The limb can be adducted, abducted, flexed, or extended, and even circumducted, while gradually increasing traction is being made, and the operator proceeds with the utmost confidence, since he can read upon the register of the spring balance the exact amount of force he is exerting.

Experience with the lever proved that the long fulcrum of the lever did not give the operator the freedom that was desirable, hence an instrument was devised with parallel fulcra, and instead of a lever a screw is employed.

The following is a summary of the paper by DR. J. COLLINS WARREN, of Boston, and compiled by DRS. R. B. GREENOUGH, C. C. SIMMONS and J. D. BARNEY:

CANCER OF THE BREAST.

Out of 416 cases of primary operation for cancer of the breast at the Massachusetts General Hospital from 1894 to 1903, inclusive, 376 were traced to a conclusive end result at an average period of eight years after operation.

Sixty-four cases were alive and well and 7 died, without recurrence over three years after the operation.

Counting in the operative mortality, there were 320 attempts at radical cure, 67 of which, or 20%, were successful.

During this same period palliative operations were performed on 56 patients (15%) and 52 cases were discharged untreated.

Cases in which the tumor was ulcerated, or was adherent to the skin or to the chest wall, and cases in which the axillary glands were palpably enlarged gave notably less promising results than when these conditions did not exist.

No case with palpably enlarged cancerous glands above the clavicle and no case of cancer of both breasts was cured.

Medullary carcinoma was more grave than scirrhus, and adenocarcinoma and colloid were relatively of a far less malignant type.

The duration of the disease, other than in the individual case, exerted little influence on prognosis.

Extensive operations with wide removal of skin gave the greatest freedom from local recurrence. Removal of the pectoralis minor appeared to be of slight significance. Incomplete operations in early cases yielded better results than extensive operations on cases which were well advanced.

Recurrence in the scar occurred in less than one half of the cases. Internal metastasis was most frequent in the lungs and mediastinum, in the axillary and supraclavicular glands, the liver and the spine.

Seventeen out of 88 cases, or 19%, of those passing the three-year limit without evidence of recurrence showed recurrence later, and 4 cases developed recurrence six years or more after the operation.

Dr. Frederic S. Dennis, of New York, presented a contribution to the symposium on

THE END RESULTS FOLLOWING CANCER OF THE BREAST.

He calls attention to a paper which he read in 1891, reporting 116 cases of cancer of the breast with less than 1% mortality, 5% local recurrences and 45% permanent cures. In 1895 he read another paper before this association and reported a smaller number of cases with a much larger percentage of permanent cures. From these two series of cases he has selected 50 upon which to base the present paper. These 50 cases are selected solely upon the knowledge of their subsequent histories, and no cases are included in this list the subsequent histories of which are not known.

In the list of 50 cases he divides the entire number into three groups, the first group comprising cases all of which have been cured beyond the three-year limit of time, and a few even twenty-five years. The second group cured beyond the three-year limit of time and died many years after the operation from causes independent of carcinoma. The third group comprises cases all of which have been cured beyond the three-year limit of time, but which have died many years after from metastases in the internal organs.

In the first group he reports 39 cases permanently cured and nearly all of these patients have been seen or heard from very recently. He calls attention, besides the radical character of the operation, to a study of the morphological condition of the tumor, as that has much more to do with the prognosis than has hitherto been supposed.

In the second group there were 4 cases. They died from acute diseases, though they lived many years after the operation.

The third group, of which there were 7, died many years after their operation from metastasis of the internal organs.

The results of these investigations have demonstrated some important clinical facts: (1) That cancer of the breast is sometimes permanently cured, or at least twenty-five years have elapsed with no evidence of a return. (2) That cases may go as long as eighteen years and yet finally have a return in some other organ. (3) That in the cases in which no return has been observed the operation was performed almost without exception within six months from the incipiency of the disease, thus showing the great importance of early operation. (4) That the more radical the operation within reasonable limits, the better the prognosis. (5) That in some cases in which the outlook was most unfavorable as manifested by extensive ulceration, hemorrhage, widespread axillary involvement, the end results have been entirely satisfactory.

Under each of these headings remarks were made.

The author lays particular stress upon the following points: That early operation is most important; the radical character of the operation is most earnestly advocated; that in some cases with extensive ulceration and hemorrhage with widespread axillary involvement, the end results have been satisfactory. In proof of this he cites several cases where the patients are well at the present time after four and eight years following operations under these most unfavorable conditions.

Finally, from a review and study of these fifty cases, it follows that surgery has made distinct advances in the cure of this most dreaded disease. It also follows that much is to be learned in regard to the accomplishment of a more uniform percentage of recoveries. It is also obvious that surgery must direct its attention to a study of the factors which influence the results of operative treatment. It is likewise evident that a more unanimity of opinion must be arrived at by surgical pathologists whose work in the histological formation of cancer is yet far from satisfactory, as one pathologist denominates a certain tumor cancerous, while another calls it by some other name. This leads to confusion and destroys the value of the results of operative treatment. The question of metastasis, too, demands more careful research, as it is yet far from clear as to where the metastasis is likely to occur in the individual case. The tendency of certain benign breast tumors is not yet understood. The period of time as to what constitutes a permanent cure following an operation is not agreed upon by all surgeons. The radical character of the operation is admitted by all as the one essential factor in the operative treatment. This widespread discussion before this association should have an influence for good on behalf of those suffering from cancer of the breast, and in years to come operative treatment in this department of surgery should give satisfactory and brilliant results.

Book Reviews.

Anatomical Terminology. With Special Reference to the BNA. By Lewellys F. Barker, M.D., Professor of Medicine, Johns Hopkins University, Baltimore, formerly professor of Anatomy, Rush Medical College, University of Chicago. Illustrated. Pp. 103. Philadelphia: P. Blakiston's Son & Co. 1907.

In descriptive anatomy, as in systematic zoölogy, synonymy has been a heavy burden. In a current text-book a paragraph of five lines begins with "*The Corium, Cutis vera, Dermis,* or *True Skin*"; and another, which is not exceptional, announces "*The Simple Follicles, Intestinal Glands, Crypts,* or *Glands of Lieberkühn, glandulæ intestinales* [*Lieberkuehni*]." In America since 1871, Prof. Burt G. Wilder has been active in reform with the following results: In 1889 the Association of American Anatomists voted to employ the adjectives *anterior, posterior, dorsal* and *ventral,* in the sense of toward the head, tail, back, and abdomen, respectively. They substituted *thoracic vertebra* for dorsal vertebra, and approved the terms *calcar, hippocampus, pons, insula, pia* and *dura.* In 1896 the Neurological Association adopted forty terms pertaining to the nervous system. The Association for the Advancement of Science went so far as to sanction the most unfortunate principle of Professor

Wilder's system, namely, that terms should be single words rather than descriptive phrases. This principle leads (1) to the introduction of shorter new names to replace more familiar older ones; (2) to the omission of nouns, making the descriptive adjective the complete term; and (3) to the fusion of two words in one, often combined with the elimination of certain syllables. The omission of *mater* from dura mater, and of *tunica* from tunica muscularis is common and desirable in the laboratory, but the noun is understood and is an essential portion of the name. Nothing is gained by ruling it out of existence. The following are examples of fused words,—*transection* for transverse section; *postcava* for vena cava posterior; *alinjected* for injected with alcohol; *terma* for lamina terminalis. In this system the elimination of synonyms becomes secondary to a kind of anatomical spelling reform.

In 1889 the *Anatomische Gesellschaft* appointed a committee of nine eminent anatomists to revise anatomical nomenclature, and after six years' labor it reported a list of about forty-five hundred Latin terms. An even larger number of synonyms were rejected. Unfortunately *anterior* is used as equivalent to *ventral*, *superior* is sometimes employed for *anterior*, and in some other instances, as in naming the dorsal pancreas *accessory pancreas*, the bias of human anatomy is apparent. In this respect Professor Wilder's rejected principle ought not to be abandoned. The German committee has adopted thirty-four of the forty terms sanctioned by the American Neurological Association; in ten of these, however, nouns which had been dropped as superfluous are retained. In general, the committee declined to introduce new terms, to combine nouns and adjectives, or to eliminate syllables or letters for brevity. It followed Professor Wilder's advice in preferring descriptive to personal names, definitely retaining only two of the latter, *Wolffian* and *Muellerian*. Intestinal glands, parotid duct, splenic nodule and renal corpuscle replace glands of Lieberkuehn, Stenson's duct, and Malpighian corpuscle, the last term having been applied to radically different parts of the spleen and kidney.

After a trial of more than ten years the anatomical nomenclature adopted at Basle, and known consequently as the BNA, has become the standard terminology. The writer has found it necessary to have the report of the German committee always at hand. This report has been made easily available by Professor Barker of Johns Hopkins University. In a preface of twelve pages he describes the origin of the Basle nomenclature. On the left-hand pages of his book are the Latin terms in two columns, reprinted in full and without modification from the German report. On the right-hand pages there are two corresponding columns of English translations of the terms, together with some of the current rejected names. He says, on page 1: "The English vocabulary is simply explanatory; in many instances it would be unwise to use the English synonyms given, and in many more instances anatomists would differ as to the most suitable English equivalent to be chosen. Each anatomist is, of course, at liberty to use whatever English equivalent he desires for the official Latin terms. Students are strongly advised, however, to use the original Latin terms as English words. The Latin terms are the only authorized ones." We agree with Professor Barker that "the sooner a general decision to adopt these terms is reached, the better it will be for anatomical instruction and research, and the easier it will be for teacher and taught."

F. T. L.

Retinoscopy. By JAMES THORINGTON, A.M., M.D. Philadelphia: P. Blakiston's Son & Co. 1906.

That this little book of some sixty-seven pages, an abstract of the author's previous writings and lectures on the subject, has reached a fifth edition is sufficient evidence of the popularity accorded by those for whom it was intended. A careful revision and the incorporation of illustration and description of several new instruments including, of course, the electric retinoscope, brings the work thoroughly to date. W. D. H.

The Ophthalmoscope and How to Use It. By JAMES THORINGTON, A.M., M.D. Philadelphia: P. Blakiston's Son & Co. 1906.

It has been the intention of the author to prepare for the medical student and general practitioner a book of convenient size and not too technical in character, from which may be obtained a fair working knowledge of the ophthalmoscope together with the ability to correctly interpret the observations thereby obtained. In the preparation the author's endeavor has been to arrange the subject matter systematically and practically as regards the chapters and pages. The sketches in color were prepared, under the personal supervision of the author, by an artist of well-known ability and especially skillful in that particular variety of illustration. The volume is compact, it contains two hundred and ninety-eight pages, seventy-three illustrations, of which twelve are in color, is well bound and indexed. W. D. H.

Problems in Animal Metabolism. A course of lectures given in the Physiological Laboratory of the London University at South Kensington. By J. B. LEATHES, Lecturer on Physiology in the Medical School of St. Thomas's Hospital. Philadelphia: P. Blakiston's Son & Co. 1012 Walnut Street. 1906.

These eight lectures are a valuable asset for the student of medicine who desires to keep in touch with modern work in metabolism. The first lecture gives a delightful résumé from a fresh point of view of physiological chemistry and metabolism. Then follow six lectures on the assimilation, synthesis and catabolism of carbohydrates, fats and proteids, with a concluding lecture upon the metabolism of cyclic formations. The lectures are technical and can be appreciated only by advanced workers. To such we would recommend them most highly.

THE BOSTON

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STATE MEDICAL SOCIETIES.

The annual meeting of the state medical societies is a matter of importance, not only to the physicians who are members of the individual societies, but also to the welfare of the profession at large in any given section of the country. The custom has grown of inviting at least one, and often several, distinguished men from other states to take a leading part in the proceedings, a habit which should be encouraged in the interests of breadth of view. This coming week two New England societies hold their meetings,—the Maine Medical Association at Lewiston and the Massachusetts Society, as is its usual custom, in Boston. The oration before the Maine Society on the subject of "Tumors" is to be delivered by Dr. W. T. Councilman, of the Harvard Medical School. The organization of the medical profession in Maine has done much for the practice of medicine in that state, and each year brings out a vigorous expression of opinion on matters of large public policy. This society, smaller than some others in numbers, has always been distinguished for its self-reliance and independence of action, and, in fact, serves as an excellent example of the attitude which a state society should assume in the increasingly complex organization of the medical profession throughout the country.

The Massachusetts Medical Society is this year holding its one hundred and twenty-sixth annual meeting; it is, therefore, ten years the senior of the New Hampshire State Medical State Society, of which we wrote editorially in our issue of May 9. The Massachusetts Society, through various vicissitudes in its career, has always stood for the best medical ideals, and throughout its long history has undertaken new policies only after much deliberation and with due conservatism. On June 7, 1881, the centennial of the Massachusetts Society was held with appropriate exercises, an account which was published in the issue of this Journal for June 8 of that year.

It is of interest in this connection to note the fact that a medical society existed in Boston as far back as 1735. Its life, however, was short; its records have been lost; and what knowledge we still have of it is fragmentary. It appears that ministers as well as physicians were members of this early organization, and it is certainly a matter of regret that no adequate history of its life and membership is extant. It apparently exerted a good influence on the profession, and its founders, whoever they may have been, were unquestionably members of the pioneer organization of its kind in this country. For many years thereafter, no medical society of which we have knowledge existed, but finally, in 1781, the present Massachusetts Medical Society was organized, including originally also the District of Maine, which was then a part of Massachusetts. The time was peculiarly interesting in medicine, inasmuch as the War of the Revolution had just closed and many of the original members of the society had served in the army, and were, therefore, familiar with the surgery of that period. The society, thus founded, rapidly became a power in the state, and has from that time to this exerted an unquestioned influence on the broad questions wherein medicine comes in contact with various social conditions. In the early days it was naturally difficult to get the members together on account of the insufficient means of transportation. Berkshire County was a two-days journey from Boston, and the District of Maine was almost unknown to those living in this neighborhood. A prophecy made twenty-six years ago in the editorial columns of this Journal is worthy of quotation here. Speaking of the first president of the society, Dr. Holyoke, the editor writes as follows: "Dr. Holyoke, whose own busy and prolonged career, marked as it was by a true temperance and prudent moderation, may not unfitly typify a destiny which it is to be hoped awaits through a longer cycle and in a large sphere the body over which he first presided."

Although scarcely a quarter of a century has elapsed since this was written, the growth of the society has been phenomenal and along the best lines.

There is a certain danger at the present time that the various state organizations, of long

history and excellent achievement, will be in a measure submerged by the great national organization of which they form a part. We have long felt, and on various occasions expressed the opinion, that the future welfare of the medical profession depends upon the proper relationship between the larger central body and the smaller state societies. We are convinced that anything which tends toward sapping the autonomy of the state organizations will be likely in the long run to disintegrate the central body. It is altogether desirable, therefore, that the state societies should meet each year with enthusiasm, should present programs of vital interest to the profession at large, and should assert their legitimate independence, while perfectly realizing their relationship to the central society. It has before been pointed out that, with the rapid development of the country at large, the medical interests of its various sections are likely to become more and more divergent, and that, in consequence, the natural evolution will be the development of relatively independent local organizations with some ultimate affiliation to a central society. The whole question is one of much interest and one which it is possible may work out to a successful conclusion. In the meantime, however, it is desirable that the state societies do not lose sight of their own privileges and prerogatives, and that they do their utmost to perfect their own organizations, and, secondarily, the geographical group to which they may belong. By this means the best good of a central society will be subserved.

HOSPITAL SERVICES.

THE rapid development in the last few years of medical instruction, and the accompanying modifications of hospital clinics to meet the changing conditions is of interest from many points of view. The increasing recognition of the fact that the wards of a hospital constitute the final laboratory training of the student has naturally led to an inquiry as to the most efficient means of subserving the interests of both patient and student. In this country the growth of medical schools and hospitals has for the most part been along independent lines. The hospital has only in rare instances been the center from which the medical school has sprung. On the other hand the medical school has rarely been able to affiliate itself closely with a great hospital. This artificial separation between medical teaching and practice has undoubtedly been detrimental to each. Hospitals have developed without the stimulus of the presence of medical students and all which that implies, whereas, medical schools have quickly reached the limit of their growth when independent of clinical facilities.

A notable exception to this unfortunate independence of development is the Johns Hopkins Hospital, of which the school of medicine is an integral part and has been from the beginning. Other medical schools of the first rank are emulating this example, and the true university hospital is likely soon to be widely realized, to the manifest benefit of a comprehensive medical education.

The problem which meets such a university-hospital, regarding the appointment of its medical staff, is a simple one. Those men are naturally appointed to positions in the hospital who hold places as teachers in the associated medical school. In other words the medical school has the privilege of appointing its clinical teachers, and the head of a department in the school likewise becomes the head of a department in the hospital. A service is under the immediate and continuous jurisdiction of a single head. This plan has long been in vogue at the Johns Hopkins Hospital, with what success is generally known.

It is, however, altogether natural that in large communities where hospitals have grown up independently of medical schools a divided form of service should have been adopted, without definite gradations of rank, except as designated by the terms, "out-patient" and "house." The manifest advantages of this system are that more men attain to high hospital rank; that the service is not so exacting, and that the hospital derives a certain benefit from the varying points of view of its numerous staff. The disadvantages of such divided services, especially from the point of view of teaching, are that a single policy cannot be carried out, that the teacher has an incomplete control of clinical material and that research is thereby hindered.

The university system, as adopted in Germany, solves many educational problems. The peripatetic method is rendered possible by uniformity of standard, so that a teacher, if checked in his career at one university, may be summoned to a higher position in another. It is therefore natural that hospital services with single heads and graded assistants are there in vogue to the great benefit of medical education. How far it is possible or desirable to introduce this method completely into this country is becoming a question of increasing importance.

A move of significance in this connection is that

begun by the Carney Hospital in South Boston some years ago and completed within the past few weeks. About five years ago, the surgical service of that hospital was placed under the charge of a single surgeon, Dr. John C. Munro, and the service was made continuous. Within a month similar action has been taken with regard to the medical service, and here also a continuous service has been instituted under the control of Dr. Henry A. Christian. It is not to be questioned that the plan will prove a success from the medical standpoint, as it already has on the surgical side, but it is of chief interest as inaugurating a method long used in Europe and in a few hospitals of this country. There are many and obvious reasons, some of which we have suggested above, which render the adoption of this plan of service by other large hospitals unlikely if not impossible.

The experiment at the Carney Hospital, therefore, if such it may be called, will be watched with great interest by all who are concerned with hospital management, and the development of the highest possibilities of teaching and research.

THE ABSINTHE QUESTION.

Of late the French Government has stopped the manufacture of absinthe on account of the ever-progressing havoc which its use has been producing among the people, and from accounts in political journals it would appear that Switzerland is to follow this example.

The history of absinthe hardly dates back a century. It is said that a French physician, Dr. Ordinaire, who was a refugee in the Canton of Neuchâtel, invented this liqueur, which he prescribed for his patients. The latter soon developed a taste for it and it was not long before it was manufactured in large quantities. From Neuchâtel absinthe passed into France and rapidly became popular, especially in the Army of Africa, and its use extended all over the country. The amount consumed has increased in enormous proportions; in France, in 1890, it represented one-sixteenth part of the total amount of alcohol consumed; in 1905, it represented the seventh part and from 105,258 hectoliters in 1890, it has reached 350,000 hectoliters in 1906. There are few Swiss statistics which are of any real value, but it may be said that the annual amount consumed in the Canton of Vaud has been estimated at 260,000 liters for a population somewhat over 300,000. The commission appointed by the Superior Council of Geneva has placed an estimate of 500,000 liters as the annual amount taken by a population of 140,000.

Referring to clinical studies on absinthe, the first of which were due to Lancereaux and Magnan, it will at once be noticed that the conviction has become more firmly rooted that special disturbances exist in individuals using absinthe exclusively or, at least, in large quantities. Joffroy and Serveaux have carried out a methodical study on the toxicity of the various alcohols, and they quite properly distinguish an experimental toxic equivalent, that is to say, the quantity of poison which may be injected in order to produce the death of one kilogram of the animal; and secondly, the true toxic equivalent, in other words, the necessary and sufficient quantity to determine by itself the death of one kilogram of the animal in a short lapse of time. In order to obtain this result, a certain quantity of the poison is injected in the venous circulation, and the dose is progressively increased until that one is obtained which causes certain and sure death. Now, if this method of experimentation is applied in the case of absinthe, it has been found that from the fact of the dissolution of alcohol the experimental results are interfered with. Without doubt the very important fact will at some time be determined, viz., to ascertain what is the toxic equivalent of absinthe, taking into consideration the various commercial preparations.

Gautier's thesis on chronic absinthe poisoning was published under the inspiration of Lancereaux. He found that most characteristic symptoms of absinthism are spontaneous or provoked painful phenomena; absinthism produces more frequently than alcoholism a weakening of the lower limbs which may even go as far as paralysis.

The genital sense and activity rapidly diminish in the male and subjects addicted to the use of this liquor almost invariably die of pulmonary tuberculosis. The mild digestive disturbances occurring in the beginning of the habit finally lead the subject to pronounced alcoholism, and when for one reason or another he becomes infected by the tubercle bacillus, he has no longer any resource to fall back upon. In reality it is the vital force which is wanting in these subjects, and their capacity of reaction against bacteria and their toxins is absolutely *nil*. Experimentally, Leonidoff noted that in dogs who had been given absinthe by mouth presented varied digestive disturbances and rapidly lost flesh.

Hasemann's thesis contains numerous observations of homicide in chronic absinthe drinkers,

and he believes that one should denominate an absinthic as an alcoholic using absinthe more especially. He designates under the name of acute and chronic absinthism this condition met with in alcoholics having the same delirium that ordinary drinkers have, but where absinthe has added its distinctive characteristics. This author also admits that many falsifications of the alcohol serving to manufacture absinthe exist, most of them having a convulsive action. The factor, alcohol, which brutalizes, and the factor, essences, which convulse, easily lead the absinthe drinker to homicidal impulse, especially when he is a degenerate, and the suddenness of the act and the amnesia following it are its distinctive characteristics.

Motor excitability is much more pronounced in the absinthe drinker than in the ordinary alcoholic; the hallucinations described by Hasemann are the proof. He also insists on the brutal character, ferocious jealousy and distrust, making the absinthic very similar to an epileptic.

The Canton of Vaud, having adopted the law promulgated by its Superior Council, caused the distillers to resort to the Federal Council on the plea of a violation of the Constitution. This body appointed three experts, namely, Dr. Gaule, Professor of Physiology at Zurich, Jacquet, Professor of Medicine at Bâle, and Weber, Professor of Psychiatry at Geneva. The first question was the following: Does absinthe have a more deleterious action on the human body than other liquors containing the same amount of alcohol and taken in equal quantity? If yes, in what consists this deleterious action? The following is briefly the reply of the experts: Our experimental knowledge of the action of the essences contained in the liqueur absinthe are as yet incomplete, but what little is at present known is sufficient to confirm the opinion that the essential oils possess a very considerable toxic power. The regular use of absinthe is a greater danger for the health than that of equivalent quantities of alcohol.

Relative to the mental condition of alcoholics entering the insane asylum at Geneva, Weber has made certain observations which are all the more valuable from the fact that they contrast with those of the asylum formerly under his charge and situated in a canton where the use of absinthe was unknown. He has noted the great number of dangerous alcoholics and states that absinthe gives to alcoholism a special symptomatology characterized by states of anxiety, violent reactions, epilepsy and body disturbances, such as pain, tendency to paralysis and a weakening of the sexual power. He also mentions the frequency of miscarriages and the premature death of the newly born.

The concordance of clinical observations with the results of the laboratory can certainly not be denied in this question. It goes without saying that one hardly meets with a case of pure absinthism, because the effects of both types of intoxication become added and intermingled, but in the case of the absinthic the intensity of the painful phenomena, convulsive attacks, impulsive delirium, violent hallucinations, jealousy and the frequency and gravity of tuberculosis are the special characteristics of intoxication from this liquor.

MEDICAL NOTES.

SUCCESSOR OF PROFESSOR VON BERGMANN. — It is reported that Dr. August Bier, of the University of Bonn, has been appointed successor of the late Professor von Bergmann as professor of surgery at Berlin.

BEQUESTS UNDER THE WILL OF THE LATE JOHN M. HARLOW. — By the will of the late John M. Harlow many bequests are made. Among those of particular interest to physicians are approximately $40,000 to the Massachusetts Hospital for the establishment of a John M. Harlow Ward, or, if not so used, for the support of free beds in the hospital. Six thousand dollars is given to the Middlesex East District Medical Society for the purpose of defraying its ordinary expenses, "including therein the expense of the annual dinner." These sums become available upon the death of his widow.

FOLIA THERAPEUTICA. — A new journal on therapeutics with the name *Folia Therapeutica* has recently been started in London. The aim of the journal will be to record the progress of modern therapeutics and pharmacology and to present in a brief manner methods of treatment and preparations which may be safely recommended and which appear to constitute a real therapeutic advance. The publication is under the editorship of Dr. A. Babinski, professor in Berlin, and Dr. J. Snowman, of London. The list of contributors to the number before us augurs its success. Prof. C. A. Ewald, of Berlin, writes a letter, and Senator, Brieger and other well-known men contribute articles. There is also an abstract department, a review of books and a bibliography. In view of the uncertain condition in which for various reasons much of

our therapeutics now is, this new publication is particularly acceptable. We commend it as a further step toward a rational attitude in various therapeutic matters.

BOSTON AND NEW ENGLAND.

Acute Infectious Diseases in Boston. — For the week ending at noon, June 5, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 41, scarlatina 39, typhoid fever 2, measles 40, tuberculosis 33, smallpox 0.

The death-rate of the reported deaths for the week ending June 5, 1907, was 19.14.

Boston Mortality Statistics. — The total number of deaths reported to the Board of Health for the week ending Saturday, June 1, 1907, was 246, against 240 the corresponding week of last year, showing an increase of 6 deaths and making the death-rate for the week 21.30. Of this number 124 were males and 122 were females; 236 were white and 10 colored; 151 were born in the United States, 89 in foreign countries and 6 unknown; 52 were of American parentage, 167 of foreign parentage and 27 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 46 cases and 3 deaths; scarlatina, 39 cases and 1 death; typhoid fever, 7 cases and 2 deaths; measles, 35 cases and 2 deaths; tuberculosis, 42 cases and 24 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 24, whooping cough 1, heart disease 33, bronchitis 3 and marasmus 4. There were 20 deaths from violent causes. The number of children who died under one year was 40; the number under five years 58. The number of persons who died over sixty years of age was 59. The deaths in public institutions were 86.

There were 11 cases and 10 deaths reported from cerebrospinal meningitis during the week.

Annual Meeting of the New Hampshire State Medical Society. — The New Hampshire Medical Society held its one hundred and sixteenth annual meeting in Concord, May 16 and 17, 1907, with an unusually large and enthusiastic attendance. Dr. John H. Neal, of Rochester, was elected President; Dr. John M. Gile, of Hanover, Vice-President; Dr. D. E. Sullivan, of Concord, Secretary, and Dr. D. M. Currier, Newport, Treasurer.

A committee was appointed to consider the question of a medical defense fund, to report at the next annual meeting.

The number of papers was limited to twelve in order that there might be plenty of time for discussion. Considerable interest was manifested in the papers, and the discussions were full and free.

The next meeting will be held in Concord, May 14 and 15, 1908.

Brookline, Mass., Antituberculosis Society.—An antituberculosis society has recently been organized in the town of Brookline. At the meeting of organization Dr. V. Y. Bowditch spoke on the general subject of the work hitherto done and methods of treatment. Mr. A. M. Wilson pointed out the means by which the campaign could be rendered effective, and Miss Alice L. Higgins, of the Associated Charities, spoke on the legislative phases of the subject. Other speakers were Drs. L. W. Gilbert, R. C. Cabot, H. Lincoln Chase, Francis P. Denny. Officers elected were: President, Moses Williams; Vice-Presidents, James M. Codman, Jr., and Dr. Walter Channing; Secretary, Hilda Williams, and Treasurer, Albert H. Lincoln.

Nurses for the Boston Schools. — Through a recent act of legislature the Boston School Committee has been enabled to appropriate $10,000 toward the establishment of a system of nurses in the public schools. Twenty-two nurses will be employed at the beginning who will enter upon their work Sept. 1. These nurses are to be employed in vacation schools, as well as in the regular schools, and each nurse is to have a vacation of four weeks during the year. Examinations to be held this month will be required of those desiring positions. We have in general commended the plan of experienced nurses for the public schools for some years. It is a matter for congratulation that the innovation has finally been accomplished.

NEW YORK.

Bequests by Martin L. Sykes. — Among the charitable bequests in the will of the late Martin L. Sykes, of Mount Vernon, N. Y., are $5,000 to the Mount Vernon Hospital and $2,000 to the Martha Wilson Home.

Pasteurization of Milk not Compulsory. — After a debate lasting nearly five hours, the Board of Aldermen on May 21 finally voted down the proposed ordinance making the pasteurization of milk compulsory in the city. It had been before the board for many months, and a number of hearings had been held upon the subject.

A BAILEY MEMORIAL HOSPITAL. — Mrs. Ruth Bailey, widow of James A. Bailey, who was associated with P. T. Barnum in business, has announced her intention to build, at a cost of at least $100,000, a hospital at Mount Vernon, Westchester County, N. Y., in memory of her husband, and to endow it with sufficient funds for its maintenance. It is to be called the Bailey Memorial Hospital, and will constitute a portion of the present Mount Vernon Hospital, to which Mrs. Bailey recently contributed $10,000.

BEQUESTS FROM EDWARD W. CURRIER. — Among the charitable bequests in the will of the late Edward W. Currier of New York, are $22,500 to the Presbyterian Hospital, to endow three beds, and $20,000 to the New York Society for the Relief of the Ruptured and Crippled, to endow four beds in its hospital. The residuary estate is left to Amherst College, from which Mr. Currier was graduated in 1865.

Obituary.

SIR JOSEPH FAYRER.

IN the death of Sir Joseph Fayrer, which occurred recently in England, the medical profession loses a man of prominence and versatility. Sir Joseph was born in 1824, and distinguished himself through the Indian mutiny, retiring as surgeon-general. Apart from his great eminence as a physician, he was widely known for his scholarship and for his many contributions to literature, both medical and otherwise. He was honorary physician to Queen Victoria, and in 1901 was made physician extraordinary to King Edward VII. He received his medical degree at the University of Edinburgh, and later became a fellow of the Royal College of Physicians in London, Royal College of Surgeons of London and Edinburgh, and of the Royal Societies of London and Edinburgh. Entering the medical service of the navy, after receiving his degree, he was identified with various disturbances during the middle period of the last century. He was present at the siege of Rome in 1848, served through the Burmese war in 1852, and the Indian Mutiny of 1857, being present at the defense of Lucknow. From 1859 to 1874 he was professor of surgery in the Medical College of Bengal, and also for two years president of the Medical Faculty of Calcutta University. Honors were showered upon him, both in the far East and in Europe. He was the recipient of many honorary degrees and of the various distinctions peculiar to England and the continental countries. His books were numerous and concerned themselves not only with medical problems, but also with other matters relating to the East, where so large a portion of his life was spent.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. MAY 18, 1907.

1. *SIMMONS, G. H. *The Commercial Domination of Therapeutics and the Movement for Reform.*
2. YOUNG, H. H. *The Cure of Unilateral Renal Hematuria by Injection of Adrenalin Through a Ureter Catheter.*
3. HILTON, D. C. *Strangulated Hernia.*
4. *DORLAND, W. A. N. *Vascular Lesions Occurring Subsequent to Abdominal Section.*
5. *MILLER, J. L. *The Action of the Extract of the Suprarenal Gland and the Method and Indications for its Use.*
6. MOHER, T. J. *Occupation in the Treatment of the Insane.*
7. AMBLER, C. P. *Tuberculin Test.*

1. Simmons's article is a good concise statement of the patent medicine situation past and present, with a description of the work of the American Medical Association to secure reform. To combat the use of nostrums the trustees of the American Medical Association in 1905 established the Council on Pharmacy and Chemistry to investigate preparations on sale. This council has been actively at work and is about to publish in book form a descriptive list of new and non-official remedies which conform to its requirements. These requirements are set forth in the form of rules, of which some of the most important are that the formulæ shall not be secret, that the preparations shall not be advertised directly or indirectly to the public, and that no extravagant therapeutic claims or other false statements shall be made in their description. Every physician should co-operate in this fight against the nostrum evil by giving preference in his prescriptions to preparations approved by the Council, by inquiring into the objections raised against the preparations used by him which are not approved, and by protesting against advertisements of non-ethical preparations in his medical journals.

4. Dorland reports cases illustrative of the vascular complications which follow abdominal operations, — hemorrhage, thrombosis and embolism. Post-operative hemorrhage is most often due to improperly applied ligatures. It may occur, however, from oozing surfaces, from the spontaneous rupture of pelvic veins or from sub-peritoneal vessels. The rupture of veins is probably the result of changes in the circulation which follow operations such as the removal of large tumors. The occurrence of this rupture after the abdomen has been closed may be due to the increased venous pressure which results from the discontinuance of the Trendelenberg position. Dorland therefore advises that the patient be lowered from the Trendelenberg to the dorsal position and search for bleeding points be made before the abdomen is closed. Thrombosis is a condition which may follow abdominal operation. It has been attributed to mild degrees of sepsis, to prolonged operation and to hemorrhage, but in certain cases, as in the one reported, all of these factors seem to be absent. A striking feature of cases in which thrombosis develops after operation is the increase of pulse rate out of proportion to the temperature, a fact which may be of diagnostic value.

5. Miller describes the physiologic action of adrenalin, the therapeutic uses to which the drug has been put and the dangers which have to be considered before it is given. The local action of adrenalin in blanching mucous membranes does not require discussion. The constitutional action may be described as a general stimulation of the sympathetic nervous system, producing an increase in blood pressure mainly by vasoconstriction, but also by direct accelerative action upon the heart. The action upon the cardiovascular system does not occur when the drug is given by mouth, but only when it is given by injection, most rapidly and most certainly by intravenous and intramuscular methods. Therapeutically adrenalin is used in conditions of vasodilation with strong heart muscle, as in chloral poisoning, shock, and collapse in chloroform or ether anesthesia. In acute pulmonary edema it is probably contra-indicated. In inaccessible

hemorrhage the harmful action by increasing blood pressure is probably greater than the benefits of vasoconstriction and increase in coagulability of the blood. In bronchial asthma favorable results have been reported from the subcutaneous use of adrenalin. It is said that the injections of adrenalin give relief within three minutes which continues several hours, but has no effect in preventing the return of the attack. This treatment should not be tried except where heart and blood vessels are in good condition. In certain cases of recurrent abdominal and pleural effusion adrenalin has been injected after withdrawal of the fluid, with the result that re-accumulation ceased; the safety of this treatment, however, is somewhat uncertain. The special dangers from the use of adrenalin are: (1) rupture of an artery from sudden increase in blood pressure; (2) glycosuria; and (3) arterial degeneration. [F. W. P.]

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES. MAY, 1907.

1. *BABCOCK, R. H. *The Diagnosis and Treatment of Cardiac Degeneration Apart from Valvular Disease.*
2. BERRY, J. M. *A Proper Shoe as an Aid to Treatment in Flat (or Weakened) Feet.*
3. *PELTON, H. H. *The Treatment of Compressed-Air (Caisson) Disease.*
4. *FRALEY, F. *A Study of Five Hundred Cases of Pleurisy Occurring at the Pennsylvania Hospital.*
5. *BENEDICT, A. L. *The Relation of the Kidneys to Gastro-Enterology.*
6. BUTLER, G. R. *Heart-Block (Adams-Stokes Disease).*
7. GORDINIER, H. C. *Position of the Motor Areas of the Human Cortex.*
8. *CLARK, L. P. *A Contribution to the Pathology of Refrigeration Facial Palsy.*
9. WARTHIN, A. S. *The Changes Produced in the Kidneys by Roentgen Irradiation.*
10. GORDON, A. *The Pathogenesis of Reflexes, Apropos of a Case of Tuberculoma of the Spinal Meninges.*
11. MAYER, E. *Scleroma of the Larynx.*
12. WRIGHT, J. *The Heredity of Form as Illustrated in Pathology by a Study of Cysts of the Middle Turbinated Bone.*
13. BROOKS, H. *Concerning the Occurrence of Neoplasms in Wild Animals.*

1. Babcock considers cases of myocardial degeneration in two groups: (1) Those in which the diagnosis is comparatively easy, resting upon good and sufficient data, and (2) those in which diagnosis is possible only by exclusion or inference from few but significant signs. The former group is made up of cases in persons past middle life in which symptoms of cardiac incompetence develop, with sclerosis of arteries and hypertrophy and dilatation of the heart, with angina pectoris and dyspnea, in the absence of nephritis. The second group comprises those cases in which sudden death may occur without preceding distinctly cardiac symptoms. In these cases it is only the most careful search that will reveal symptoms or signs. In patients who after a general examination are looked upon with suspicion on account of advancing age, myocardial degeneration is to be thought of. In such cases symptoms which the patient has considered unimportant, such as slight precordial distress or slight shortness of breath on exertion, may be significant. Increase in the deep cardiac dullness, particularly to the left, must be looked for with special care. Dullness which extends more than 10 cm. to the left of the median line at the level of the fourth rib indicates hypertrophy of the left ventricle even though the apex may be within the nipple line. A loud ringing aortic second and increased blood pressure are of importance, since they establish a probability that the myocardium is being overtaxed. In treatment, cases with marked signs of cardiac insufficiency should be managed in the same way as cases of waning heart power from any other cause. When signs and symptoms are slight, however, treatment is to be directed mainly toward the prevention of further progress of the disorder. Acute strain of the heart and continued hypertension are to be avoided, but absolute rest in bed is not indicated, or if it seems advisable should be combined with massage and resistance exercises or Nauheim baths. Digitalis and strophanthus are needed at times, but should be given with caution. Daily mild saline catharsis is beneficial, and a comfortable night's rest is to be insured when necessary by small doses of morphia or heroin. In cases of the second group, special stress is to be laid upon the dangers of overexertion. Systematic and carefully regulated medical gymnastics, on the other hand, are of the greatest benefit. The diet is to be supervised to prevent overfeeding; the bowels are to be regulated by laxative. The medicinal treatment has but a small place in management of these cases. Vasodilators are as a rule to be avoided.

3. Caisson disease occurs as the result of work in compressed air, in tunnels, etc., and is supposed to be due to gas emboli in the circulation. The cases fall under four main types according to relative prominence of the four following symptoms: pains, vertigo, paralysis (usually not permanent) and coma. Workmen who are employed in the caisson should be required to pass physical examinations. The treatment is to place the patient again in compressed air, either in the caisson or in a "hospital lock" until symptoms are relieved, and then to lower the pressure by slow gradation before the patient is taken out. Stimulation, artificial respiration and oxygen may also be required.

4. Fraley has made a careful study of 500 cases of pleurisy occurring in the past ten years. His statistics include a great number of interesting facts which, although they are too numerous to include in this abstract, form an important contribution to the literature of the disease. A few of the more important results are as follows: Pleurisy occurs most frequently in the winter and early spring months. Although in children the sexes are affected equally, in adults the disease occurs four times as frequently in men as in women. The tendency to pus formation is greater in the young. In a majority of cases the onset could be traced to exposure to cold, to bronchitis or to pneumonia. Symptoms and signs are tabulated according to the frequency of their occurrence. The complications are enumerated, nephritis, which occurred 106 times, heading the list. In treatment, strapping in dry pleurisies, aspiration of effusions, and drainage by resection of ribs in empyema, were measures whose beneficial effects were strikingly demonstrated by the results. In massive effusions the average duration of the disease in cases aspirated as compared with that of cases where aspiration was refused was 24.7 days against 55 days. No uncomplicated non-purulent pleurisy died; among the 315 serous effusions there were 16 deaths from a large variety of complications. Of 95 empyemas 21 died. Of 10 empyemas which refused operation only 1 is known to have recovered.

5. Benedict's article is a discussion of the renal conditions encountered in the observation of a large number of cases with symptoms referred to the digestive tract. Movable kidney is extremely frequent in association with stomach disorders, but its exact connection with them is not understood. Renal calculi often cause vomiting and constipation by reflex action; renal colic may also simulate biliary colic, appendicitis or gastric ulcer. Acute nephritis seldom causes confusion; chronic nephritis is more frequently met, and as shown by comparison of clinical with autopsy findings the urine is not always a reliable indication of the presence or importance of kidney lesions, since unimportant local inflammation may give albuminuria and casts, and occasionally with extensively diseased kidneys the urine may show no abnormality. In certain conditions the alimentary tract and the kidneys, as well as the heart, lungs and liver, are involved together in disorders due to disturbances of the circulation, which may be due primarily either to the heart, to the liver or to the kidneys. Renal paresis is very frequent in disease of the digestive organs. In asthmatic and other patients there may be periods of almost absolute paralysis both of renal and gastric secretion.

8. Clark has examined sections of the facial nerve in two cases of the refrigeration facial palsy of Bell, and has found them degenerated. From this fact and for other reasons he believes that the paralysis is not due to a disturbance of motor nerve endings, but to a more central lesion, perhaps to compression by inflammatory swelling in the Fallopian canal. [F. W. P.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 17.
APRIL 25, 1907.

1. GOLDSCHEIDER. *Symptoms of Psycho-Reflex Origin.*
2. *KOLLE, W. *Serum Therapy in Acute Infectious Diseases.* (Concluded.)
3. *SAHLI, H. *Sphygmobolometry: A New Method of Studying the Circulation.* (Concluded.)
4. GIEMSA, G. *The Staining of the Spirochete Pallida in Smear Preparations.*
5. KLEINSCHMIDT, P. *The Treatment of Ischemic Muscle Contractures.*
6. BAERWALD, RICHARD. *Hay Fever Resorts in the Alps.*
7. KOLACZEK, H., and MULLER, E. *Simple Method of Differentiating Tubercular from Other Forms of Pus.*

2. Kolle summarizes for the practicing physician our present knowledge of serum therapy. Vaccinations or protective inoculations he calls indirect serum therapy, while the injection of antitoxic or antibacterial serums constitute the direct. After reviewing the theories and results of serum treatment in all the specific infectious diseases he concludes that it is not unlikely that mixed passive and active immunization will be of great service in many instances, and quotes the successful campaign recently carried on in the Philippines against the rinderpest by this means. The blood of infected cattle contains the virus, which as yet has not been cultivated artificially. The serum of cattle which have recovered from the disease, or which have been immunized cautiously with infected blood, contains the specific antibodies. Both the immune serum and the virulent blood are used for inoculations. This principle is found effective in experimental work with cholera, typhoid and plague.

3. Sahli demonstrates again the importance of the mean blood pressure for diagnosis as well as for determining the efficiency of certain therapeutic agents, and in sphygmobolometry thinks that he has devised a simple and accurate method of obtaining it. This method, which gets its name from the Greek "βολις," a projectile, measures and records graphically the projectile force of the blood in the aorta. The apparatus cannot be described intelligently without the aid of the mechanical drawings with which Sahli's article is illustrated, but it is practically the Riva-Rocci, with a cuff 8 cm. broad and the caliber of the glass manometer 5 mm. The oscillations of the Hg. column are recorded through pneumatic means by the registering apparatus, and readings are taken at various pressures until the point of greatest oscillation has been passed. By a simple mathematical calculation the work of the pulse can be ascertained. After the establishment of a normal for healthy men of different weights, this will be of importance in disease. The action of drugs on the circulation can be seen with greater certainty by the sphygmobolometer than by any other hydraulic means. It is technically simpler and more time-saving than the graphic maximal and minimal pressure estimation of Janeway. [L. G. M.]

MÜNCHENER MEDIZINISCHE WOCHENSCHREFT, No. 16.
APRIL 16, 1907.

1. *LENHARTZ, H. *Acute and Chronic Pyelitis.*
2. *MORAWITZ, P. *The Treatment of Severe Anemias by Transfusion of Blood.*
3. EITNER, E. *Observations on the Living Spirocheta Pallida.*
4. *STURSBERG, H. *Addison's Disease without Pigmentation.*
5. *GIERKE, E. *Hypertrophy of the Thymus Gland in Exophthalmic Goiter.*
6. *EICHHOLZ. *Experience with Vaccination against Typhoid Fever in German Southwest Africa.*
7. *DEHLER. *The Treatment of Typhoid Bacillus-Carriers.*
8. *STOLZENBURG. *Report of the Results of the Use of the Kuhn Aspiration-Mask at the Sanatorium Slawentzitz.*
9. *KUHN, E. *Further Experience with the Congestion Treatment of Lung Diseases by Means of the Aspiration-Mask.*
10. HERZ, M. *Testing the Movability of the Heart.*
11. FISCHER, B. *The Discovery of the Cause of Cancer by Dr. H. Spude.*
12. *DEUTSCHLÄNDER, C. *The Treatment of Bone and Joint Tuberculosis by Passive Congestion.* (Concluded.)

1. This interesting article by Lenhartz gives the fruit of his unique experience at the Eppendorf Hospital. It deals only with primary pyelitis, excluding those forms resulting from stone, stricture, enlarged prostate, etc. Of his 80 cases, 92½% were women. This is explained by the mode of infection, which is ascending from the external genitalia. In the female, bacteria from the feces readily gain access to the vulva, and thence to the urethra. Pregnancy, menstruation and puerperium act as predisposing causes. The colon bacillus was found in pure culture in the urine in 85% of all cases; in a few instances the proteus, paratyphoid or lactic acid bacilli were cultivated. Acute pyelitis often sets in suddenly with general symptoms, high fever, widespread pains, etc., and in fully one half the cases there is no complaint referable to the kidneys. Examination, however, shows tenderness over one kidney, most often the right, and frequently a swelling of the organ. The urine contains pus, bacilli and often caudate cells. These latter, however, may be absent, and their presence is by no means pathognomonic of pyelitis. The duration of the fever is eight to fourteen days, the chart often exactly resembling that of croupous pneumonia. Very important is the evident tendency to relapses, which are not seldom coincident with menstruation. In treatment little is to be expected of the so-called batericidal drugs, such as urotropin; rest in bed and the copious use of mineral waters are indicated. It is interesting to note that out of 54 cases discharged clinically well 38 still showed the presence of bacteria in the urine.

2. Morawitz reports on the use of transfusion in the anemias, on the basis of 6 cases treated in Krehl's clinic. The results were surprisingly good in 3 cases, 2 were under observation only a short time, 1 died in spite of treatment, the autopsy revealing a plasia of the bone-marrow. Improvement never set in before three or four days, which fact, together with the small amount of blood injected (200 cc.), would seem to exclude direct action and point rather to a stimulation of the blood-producing organs. Defibriniated blood was used for the injections. Often chills, fever, dyspnea, hemoglobinurea follow, but these symptoms are transitory. Death has never been reported as the immediate result of the injection.

4. Stursberg reports 3 cases of Addison's disease without pigmentation. The diagnosis may be made in the presence of (1) marked progressive prostration without assignable cause and accompanied by good nutrition; (2) great reduction of the blood pressure and (3) gastro-intestinal disturbances.

5. Gierke saw in 2 malignant cases of Graves's disease very striking enlargement of the thymus, the organs weighing 53 and 97 gms. respectively. This finding has been reported before, especially in cases dying soon after extirpation of the (exophthalmic) goiter. The relationship between thymus and thyroid remains hypothetical, but there is some ground for assuming an interaction between the two glands. On this theory the sudden removal of a large part of the thyroid might lead to an intoxication with the product of the hypertrophied thymus.

6. Eichholz makes a comparison between 34 cases of typhoid fever occurring in soldiers previously vaccinated against typhoid, and an equal number among the non-vaccinated. The mortality among the former was zero, as against 8% in the latter; the course was shorter and the complications fewer among the vaccinated. His statistics are too small for definite conclusions, but are certainly suggestive.

7. Dehler reports the first operation on the gall bladder to be performed as a prophylactic measure to prevent the spread of typhoid bacilli by the feces. The patient, an inmate of an insane asylum, gave no history of typhoid fever. For two years her feces constantly contained typhoid bacilli in large numbers, and previous to this she had been the cause of a small epidemic of typhoid. The

operation consisted in a wide opening of the gall bladder with drainage, and resulted in obliteration of the gall bladder. Typhoid bacilli were obtained in pure culture from the bile. The result was excellent, the feces showing only one positive culture, two months after the operation, although no less than 76 stools were examined.

8. Kuhn's aspiration-mask (*lungensaugmaske*) is an apparatus by means of which respiration through the nose can be obstructed to any desired amount. Inspiration is made through the nose, expiration unhindered through the mouth. By this means hyperemia of the lungs is produced. The mask is worn for gradually increasing periods up to two hours twice a day. Stolzenburg has had gratifying results with this method; the respiration became easier and more vesicular, cough less troublesome and in many cases râles rapidly diminished. He regards it as a valuable adjunct to the sanatorium treatment.

9. Kuhn reports further on hyperemia in the treatment of lung diseases as obtained by the use of his mask. An autopsy on a case of recent phthisis treated by his method, in which death was due to intestinal tuberculosis, showed the process in the lung to be in the process of healing. While the passive hyperemia produced is very important, no small part of the good effects is ascribed to the strengthening of the muscles of respiration. The use of the mask is found to produce a marked rise in the number of red corpuscles, and to a less extent in the leucocytes, similar to that found in residents of high altitudes. The method never produces untoward symptoms, and may be employed soon after a hemorrhage without danger. Kuhn's hospital material is not suitable for statistics, but in cases in the second stage an increase of weight, with decrease of cough and of the physical signs was almost invariably obtained. Favorable results are reported also in asthma, overdistention of the right side of the heart and pneumonia.

12. Deutschländer has treated 44 cases of tuberculosis of the bones and joints by Bier's congestion method, with results far better than those obtained with the old ways. The congestion should be intense and of short duration (one to two hours daily); it should never cause pain or edema. It should be used over long periods of time, and long after apparent cure has been attained. After each four weeks of congestion it is best to interpose a week without congestion. Fistulæ and abscesses are treated by a combination of passive congestion and suction; abscesses and large effusions are evacuated by the trocar with strong aspiration. Immobilization is not necessary, but moderate active movement of the joints is desirable. [W. T.]

Deutsche Zeitschrift für Chirurgie. Band 87. Heft 1–3.

March, 1907.

1. Borchard. *The Treatment of Injuries of the Musculo-Spiral Nerve.*
2. *Doering, H. *Renal Surgery.*
3. Fertig, J. *Traumatic Rupture of the Liver Followed by Sequestration of a Large Fragment.*
4. Jenckle, A. *The Pathology of the Multilocular (Alveolar) Echinococcus.*
5. *Braun, W. *The Exposure of the Central Portion of the Middle Cranial Fossa (Gasserian Ganglion).*
6. *Aldehoff, G. *Jaundice Complicating Appendicitis.*
7. Haeckel, H. *Intestinal Obstruction in Appendicitis.*
8. Jaeckh, A. *Meckel's Diverticulum as a Cause of Intestinal Obstruction.*
9. Evers. *A Case of Spontaneous Gangrene of Several Finger Tips of the Left Hand.*
10. Rosenberger, W. *Hemolymphangioma of the Scrotum.*
11. *Linkenheld, F. *Bilateral Avulsion of the Tibial Tubercle.*
12. Matthiolius. *Naval Surgery in the Russo-Japanese War.*
13. *Creite, O. *The Surgical Treatment of Cancer of the Stomach.*

2. The article of Doering reports the results of the clinic of Professor Braun at Göttingen in the treatment of (1) hydronephroses, (2) pyonephroses and (3) renal calculi. As regards the treatment of hydronephroses, primary nephrotomy is to be avoided because, in itself, this operation rarely cures the condition. Primary lumbar nephrectomy in the presence of a well-functioning second kidney is the safest and quickest method of cure. Of 13 cases of hydronephrosis occurring in this clinic, 6 primary lumbar nephrectomies were done, with complete cure in from five to six weeks. One case of transperitoneal nephrectomy died. Two secondary nephrectomies (after nephrotomy) resulted in cures, as did two nephropexies. Of two primary nephrotomies one has had the resulting fistula closed by a secondary operation; in the other it still exists. In the treatment of pyonephroses nephrectomy should also be done whenever practicable. If for any reason it is impossible to demonstrate the integrity of the other kidney, a nephrotomy should be done, to be followed by nephrectomy as soon as is feasible. Eleven cases of this class are tabulated as follows: Simple nephrotomy, 3 cases, — 1 cured, 2 discharged with fistulæ. Primary nephrotomy with secondary nephrectomy, 6 cases, of which 5 were cured while 1 died. One case was cured by primary nephrectomy. Two cases bearing fistulæ were cured by nephrectomy. In the treatment of renal stone the ideal operation is extraction of the stone by splitting the kidney. In cases where a hydro- or pyo-nephrosis co-exists with the stone, if there has been very extensive destruction of the kidney substance, a nephrectomy should be done. In cases of anuria bilateral nephrotomy should be done without delay. There occurred 18 cases of this class. Primary nephrectomy done in 4 cases was followed by cure, as was also secondary nephrectomy after nephrotomy in 3. Of 2 simple nephrotomies, 1 died, the other recovered. One case was cured by extraction of the stone by pyelotomy, while in 1 case removal of the stone by this method resulted fatally. One case of perinephritic abscess died after incision, as did also 2 cases of anuria following exploratory laparotomy. Three cases were not operated.

5. From an anatomical investigation of the various methods of reaching the gasserian ganglion carried out fifty times on the cadaver, and from the application of this experience in 3 clinical cases, Braun concludes that the best and easiest route of approach is through a low temporal incision. In no instance did he find it necessary to resect the zygoma. To avoid hemorrhage he much prefers ligation of the external carotid in the neck to that of ligation of the middle meningeal. To reduce brain tension as much as possible he employs in the sitting posture. The infratemporal route should not be employed.

6. Aldehoff calls attention to jaundice as a complication of appendicitis. He reports 5 cases and concludes as follows: "After an operation for appendicitis of the suppurative variety, there can arise, without any signs of peritonitis, a condition of generalized sepsis, the most important symptom of which is jaundice, varying in intensity. Its occurrence must always make the prognosis doubtful, for it may disappear after two or three days, or may cause death in delirium and coma."

11. Linkenheld reports a case of simultaneous avulsion of the tubercles of both tibæ by muscular violence occurring in a boy of sixteen. On one side the fragment was held in place by sutures, while on the other a wire nail was necessary. A perfect result was obtained in each instance. The article then reviews the whole subject *in extenso*, 27 cases from the literature being reported.

13. From 1884 to 1906 Professor Braun has done 211 operations on the stomach for malignant disease. In this number are 50 cases of gastrectomy, the details of which are given in this paper by Creite. This operation was only done as a rule in those cases where the tumor was movable and in which there were no demonstrable metastases. In 9 cases the stump of the duodenum was sewn into the lower portion of the gastric incision, while in 41 the operation of Billroth was the method used. This method consists of closure of both gastric and duodenal ends, followed by union of the upper jejunum and the posterior stomach wall, either by suture or the Murphy button. Of this series of 50 cases 19 died from the operation, giving an immediate mortality of 38%. Twenty-four have died at some later date; 7 still live. The average time of recurrence was found to be sixteen months. Only 1 case of those now living has existed beyond the three-year period. [W. C. Q.]

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 25, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,447	423	Quincy	9	2
Chicago	641	199	Waltham	5	—
Philadelphia	—	—	Pittsfield	6	0
St. Louis	—	—	Gloucester	5	1
Baltimore	204	50	Brookline	5	—
Cleveland	—	—	North Adams	5	2
Buffalo	—	—	Chicopee	10	4
Pittsburg	—	—	Northampton	5	0
Cincinnati	—	—	Medford	5	—
Milwaukee	—	—	Beverly	5	—
Washington	—	—	Leominster	2	—
Providence	69	12	Hyde Park	4	1
Boston	208	63	Melrose	4	—
Worcester	41	7	Newburyport	—	—
Fall River	35	12	Woburn	3	—
Cambridge	17	1	Marlboro	4	1
Lowell	34	13	Westfield	3	—
Lynn	13	1	Peabody	—	—
New Bedford	23	6	Revere	3	1
Springfield	17	7	Attleboro	4	0
Lawrence	22	3	Clinton	3	0
Somerville	19	3	Adams	—	—
Holyoke	22	13	Gardner	—	—
Brockton	16	9	Milford	—	—
Malden	10	1	Watertown	2	1
Chelsea	16	4	Plymouth	—	—
Salem	8	2	Weymouth	4	0
Newton	11	2	Framingham	5	1
Haverhill	10	4	Southbridge	4	1
Fitchburg	6	2	Wakefield	—	—
Everett	5	—	Webster	—	—
Taunton	10	3			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 1, 1907.

F. X. KOLTES, assistant surgeon. Ordered to Mare Island Yard, Cal.

R. P. NEVILLE, pharmacist, having been examined by retiring board and found incapacitated for active service on account of disability incident thereto, is retired from active service May 23, under provisions of Sect. 1453 R. S.

C. J. DECKER, surgeon. Sick leave further extended three months from May 23.

R. R. RICHARDSON, passed assistant surgeon. Detached from the "Boston" when placed out of commission and ordered to the "Albany" when placed in commission.

E. H. MARSTELLER, surgeon. Sick leave further extended six weeks from May 28.

W. B. SMITH, passed assistant surgeon. Detached from the "Raleigh" and ordered to the "Helena."

R. E. STOOPES, assistant surgeon. Detached from the "Concord" and ordered home.

W. D. OWENS, assistant surgeon. Detached from the "Villalobos" and ordered home.

C. T. GRAYSON, assistant surgeon. Detached from the "Maryland" and ordered home.

C. K. WINN, assistant surgeon. Ordered to the "Villalobos."

T. W. RAISON, assistant surgeon. Ordered to the "West Virginia."

I. F. COHN, assistant surgeon. Ordered to the "El Cano."

H. BUTTS, assistant surgeon. Ordered to the "Maryland."

E. C. J. EYTINGE, assistant surgeon. Detached from the "El Cano" and ordered to the "Concord."

L. H. WHEELER, assistant surgeon. Detached from the "Helena" and ordered to the "Raleigh."

APPOINTMENTS.

THE following appointments have been made at the Carney Hospital: Dr. John B. Hawes, 2d, Dr. William B. Robbins and Dr. Nathaniel K. Wood, assistant physicians to the Out-Patient Department.

SOCIETY NOTICE.

MEDICAL SOCIETY OF NEW JERSEY. — Important change in the place of the annual meeting. Owing to the fact that the new hotel at Cape May will not be completed in time, the Medical Society of New Jersey has been obliged to change the place of its annual meeting. The trustees have selected Long Branch, and the next meeting of the Society will be held in that city at the Hotel Scarboro on June 25, 26, 27, 1907.

By order of

MAY 27, 1907. THE BOARD OF TRUSTEES.

RECENT DEATH.

ALONZO LAWRENCE STICKNEY, M.D., M.M.S.S., died in Ashburnham June 4, 1907.

BOOKS AND PAMPHLETS RECEIVED.

Foods and Their Adulteration; Origin, Manufacture and Composition of Food Products; Description of Common Adulterations, Food Standards and National Food Laws and Regulations. By Harvey W. Wiley, M.D., Ph.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Introduction to Infectious and Parasitic Diseases, Including Their Cause and Manner of Transmission. By Millard Langfeld, A.B., M.D. With an Introduction by Lewellys F. Barker, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Manual of Operative Surgery. By John Fairbairn Binnie, A.M., C. M. (Aberdeen). Third edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Proceedings of the American Medical Editors' Association. Thirty-seventh Annual Meeting held in Boston, Mass., June 5, 1906.

Etude Experimentale de la Pleurésie Séro-Fibrineuse Tuberculeuse. Par M. le Docteur P. Cartier. Paris: G. Steinheil. 1906.

Ueber Lungengangrän. Von Carl Beck. Reprint.

Ueber die Bewertung der Frühsymptome bei der Entzündung des Wurmfortsatzes. By Prof. Dr. Carl Beck. Reprint.

A New Method of Incision for Removal of the Breast. By Carl Beck, M.D. Reprint.

A New Method of Operation for Epispadias. By Carl Beck, M.D. Reprint.

Cholelithiasis. By Carl Beck, M.D. Reprint.

Skiagraphic and Therapeutic Factors in Tuberculosis of the Bones and Joints, with Some Reference to the Iodoform Treatment. By Carl Beck, M.D. Reprint.

The Röntgen Method in Lithiasis of the Urinary Tract. By Carl Beck, M.D. Reprint.

Diseases of Women, A Clinical Guide to their Diagnosis and Treatment. By George Ernest Herman, M.B. Lond., F.R.C.P. Illustrated. New York: William Wood & Co. 1907.

The Diagnosis and Modern Treatment of Pulmonary Consumption, with Special Reference to the Early Recognition and the Permanent Arrest of the Disease. By Arthur Latham, M.A., M.D. Oxon., M.A. Cantab., F.R.C.P. Lond. New York: William Wood & Co. 1907.

The Essentials of Chemical Physiology. For the Use of Students. By W. D. Halliburton, M.D., LL.D., F.R.S. Sixth edition. Illustrated. New York, London, Bombay and Calcutta: Longmans, Green & Co. 1907.

A Handbook of Skin Diseases and Their Treatment. By Arthur Whitefield, M.D. (Lond.), F.R.C.P. Illustrated. New York and London: Longmans, Green & Co. 1907.

On Extensive Separation of the Periosteum in Displaced Bone Fragments. By Carl Beck, M.D. Reprint.

On the Use of the Temporal Fascia to Cover in Cranial Defects. By Carl Beck, M.D. Reprint.

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Address.

THE RELATION OF THE CLINICAL LABORATORY TO THE PRACTITIONER OF MEDICINE.

ORATION ON MEDICINE AT THE FIFTY-EIGHTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 4–7, 1907.*

BY JAMES B. HERRICK, M.D., CHICAGO.

THE change that has been brought about in our conception of disease and in the manner of its detection through the discovery and invention of instruments and methods of precision and the application of improved laboratory technic is one of the most striking characteristics of the marvelous advance in medicine of the last half century. To realize what this means, think for a moment how comparatively helpless we should be were we suddenly deprived of bacteriologic aid in diagnosis with its attendant specific serum reactions; of the improvements in technic of the last fifty years in the way of microscopy, stains, section-cutting, etc.; of the study of the corpuscles of the blood and the estimation of its hemoglobin; of our knowledge of the chemistry of the stomach; of the cytologic, bacteriologic, chemical and physical facts concerning normal and pathologic fluids of the body; of the means of measuring blood pressure; of the numerous electric light appliances that enable us to explore nearly all the orifices and cavities of the body; of the Rœntgen ray; of the improved qualitative and quantitative chemistry of the urine and feces; of aids from physical chemistry. Think of how poverty-stricken we should feel were these aids taken from us — and they are by no means all of this class that might be enumerated — and then, and then only, do we begin in faint measure to realize the enormous value of these additions to our knowledge that have been made in the last few decades and the almost revolutionary change they have wrought in the methods of diagnosis.

These instrumental and laboratory methods, depending as they do on applied physics, chemistry, anatomy and physiology, have to do with the more exact sciences. They are, therefore, commonly regarded as having in them something of mathematical exactness, something of the element of finality. A piece of tumor viewed under the microscope, a bacillus obtained from the blood, grown, studied and seen with oil immersion lens, a chemical test of urine with the substance in question not only proven to exist but actually recovered and weighed in the balance — what are these but accurate procedures whose results must be correct? The physician, not clearly understanding all the workings of the laboratory, and dazzled by the brilliancy of the splendid results that have come from it, stung by the taunt that this practice is but empiricism, and smarting because conscious that the taunt is justified, has hailed the laboratory as his deliverer from the thralls of empiricism, irrationalism and mere experience and has looked up to it as the embodiment of science, as a never-failing aid in solving the mysteries of disease. The laboratory method has, therefore, in the minds of many, acquired a transcendent importance; anamnesis and physical examination seem old-fashioned and unreliable. The laboratory is viewed as a *sanctum sanctorum* pervaded by a purer light than the wards of the hospital; and the laboratory man as a superior being, the incarnation of all that is scientific in medicine and whose word cannot be questioned. Dr. L. Emmet Holt [1] recently put it in this way:

"The men of the laboratory to-day dominate medical thought. They form a sort of oligarchy, to whose decrees those who study medicine at the bedside only must needs submit, often with a subsconcious feeling of their own inferiority."

And he adds:

"I cannot myself resist the opinion that the man of the microscope and the culture tube occupies just now a place of too great importance, at least in the minds of the medical student and the younger practitioner."

Now, nothing has given a greater uplift to medical thought and practice, and especially to diagnosis, than the laboratory. Its aid is indispensable. But it has its own proper place. The earlier tendency to overvalue its work and to undervalue that done at the bedside is having the natural result in a swing back of the pendulum, and we are now hearing voices on either side of the Atlantic cautioning against the undue magnification of the laboratory at the expense of other aids to diagnosis. In our own country several writers have recently referred to the subject, and within a few weeks a large body of select medical men — the Congress of American Physicians and Surgeons — has considered the subject in a symposium, "The Relative Value of Laboratory and Clinical Methods in Diagnosis."

I have thought the matter of sufficient importance to be made the subject of this address. And particularly because I feared the papers of the symposium just referred to might not reach the bulk and sinew of the profession, viz., the general practitioner, and because I felt that too much emphasis could not be laid on certain points, I shall, even at the risk of seeming to repeat much that has just been said by others, venture to speak on "The Relation of the Clinical Laboratory to the General Practitioner."

It should be understood at the outset that I am not referring to laboratories devoted exclusively to research, such as the Pasteur Institute, Koch's or Ehrlich's laboratories, the Lister Institute of Great Britain, the Rockefeller Institute or the Memorial Institute for Infectious Diseases. I refer particularly in this discussion to what is commonly called the clinical laboratory, the laboratory that is run as a utility, as an instrument of precision, if you please, in the armamentarium of the physician, the place to which he takes to examine himself or to have examined by others his specimens of blood, sputum, stomach

* Published through the courtesy of the Journal of the American Medical Association.

[1] Holt (L. Emmet): Medical Tendencies and Medical Ideals, The Journal A. M. A., March 9, 1907, p. 845.

contents, cultures from the throat, or fragment of tumor, hoping for aid in diagnosis and hints as to prognosis and therapy.

But let me add that unless such clinical laboratory, no matter how small it may be, has in it the essence of research its work becomes routine and nonprogressive. It is the search for the new that activates. A slow but sure death overtakes the laboratory as it does the ward in which there is no spirit of investigation.

It seems to me that certain mistaken notions obtain regarding these laboratories, which lead at times to strained relations and misunderstandings between the practitioner and the laboratory expert. These are due to faults that lie partly in the laboratory worker, partly in the physician.

First as to faults of the laboratory. And I dismiss from this criticism laboratory work that is done by incompetent men, poorly trained or careless. That some of these men pretending to do scientific work are entirely unfitted for it is, of course, true, but this is no just reflection on the laboratory method as such, any more than an incompetent practitioner of medicine should lead us to condemn the entire system of practice.

In the first place there is often a failure on the part of the laboratory to acknowledge frankly its inherent limitations. The truly great men in this line of work are ever the most conservative in the expression of opinion. There is too clearly present before their minds the possibility of error in technic, of false interpretation of that which is seen, of our poverty of knowledge concerning some of the even common laboratory reactions. These are the men who are always on the lookout for artefacts, who refuse to state positively, from microscopic examination alone, that a smear from the throat does or does not contain diphtheria bacilli, who hesitate to declare that a cellular form is the ameba coli, who may decline to pronounce whether a given section is from a sarcoma or an inflammatory swelling. These are the laboratory men who have the courage to say, "I don't know," or "It is impossible for any one to tell." Were there a franker willingness on the part of the laboratory expert to admit these limitations of knowledge, just as the clinician must at times acknowledge his inability to interpret physical signs, there would be in the end a distinct gain in confidence in the laboratory rather than a loss when the practitioner finds from subsequent history of the disease, as he sometimes does, that the opinion of the laboratory so positively expressed was wrong.

In the second place there is at times a failure on the part of the laboratory to realize the gravity of the duty imposed on it by the physician. The family doctor, with the medical or surgical consultant, may have exhausted their means of diagnosis. The laboratory expert is called on. On his findings depends, perhaps, the loss of the uterus in a young wife for supposed carcinoma, the sacrifice of a limb for what seems to be sarcoma but may be really gumma, the giving up of life's plans and hopes because of supposed tuberculosis of the lung or kidney, the diagnosis being based on some doubtful tubercle bacilli in the sputum or urine. The laboratory worker is often so remote from his patient that he fails to feel that personal responsibility of which the family physician is all too conscious, and so, scarcely realizing the importance which attaches to his decision, he may make it on insufficient grounds. Were he to feel the full import of this decision, in doubtful cases he might admit more frankly to himself and to the physician his inability to reach a positive conclusion. Repeated or later examinations could then he made, thus clearing up the diagnosis. Or, in the event that uncertainty still remains, the matter could be frankly discussed with the physician and the family and the best combined decision possible under the circumstances could then be honestly reached.

Third, there is a tendency for some laboratory workers to step beyond their province and make diagnoses that are unwarranted by the facts and perhaps unasked for, and even to advance a prognosis and advice as to treatment. Strictly speaking, the laboratory's function stops when it announces its findings. The interpretation of the laboratory findings rests with the practitioner. I am aware that no sharp line can or should be drawn here, for, as I believe, these two men should work together and should both be practitioners, both be in close touch with the patient. But I criticise such things as this. I have seen, and more than once, reports from clinical laboratories reading somewhat as follows: "This urine is from a typical case of chronic interstitial nephritis," when forsooth it was not; it was from a typhoid drinking huge quantities of water passing urine of low specific gravity and of large amount, with a trace of albumin and an occasional cast. Often I have seen the positive diagnosis of pernicious or secondary anemia made from a blood smear alone sent into a laboratory. We know this is possible, but it is risky. And many times have I seen a report that said in substance, often in so many words on the basis of a Widal reaction: "This is (or is not) a case of typhoid fever." And when free hydrochloric acid has been found in the stomach contents the statement is returned: "This is not a case of carcinoma." Such reports, I need scarcely say, are wholly unwarrantable. They are as inexcusable as for the clinician to percuss the chest and listen with the stethoscope and declare positively that the case is or is not tuberculosis of the lung, without paying attention to the anamnesis or to the other physical findings, the sputum, etc. Nothing has done more to bring the laboratory into disrepute than this irrational, almost meddlesome, method of venturing a diagnosis on wholly insufficient grounds. It is hardly an excuse that the laboratory is often asked for a diagnosis by the physician who is unable to interpret the findings. The answer even then should be a guarded one and one liable to revision in the light of clinical findings. The laboratory man should stand, if you please, in the nature of a consultant, the opinion in the case, while influenced, of course, largely by the laboratory findings, should always be the combined

opinion of the practitioner and his colleague, the laboratory man.

On the part of the practitioner there is often a failure to recognize the limitations of the laboratory. As I have said, the physician too often has the notion that the laboratory methods are supreme and that it renders unnecessary and obsolete the old-time careful bedside observation. The possibility of error on the part of the patient or of the physician who provides the specimen for examination, particularly a specimen for bacteriologic examination, the personal element of carelessness, haste, hurried conclusions in the laboratory operator, faulty or balky instruments or reagents, the intrusting of important details to immature assistants,—these are some of the ways in which error may creep in and ways concerning which the practitioner untrained in the laboratory is ignorant.

But while this kind of limitation of the power of the laboratory has to be reckoned with, it is, after all, not so much a fault of the laboratory itself as of the individual worker. But misinterpretation of laboratory findings by the practitioner is common and is grave. And this is due to no fault on the part of the laboratory, but rather to the shortcomings of the methods themselves and the failure on the part of the practitioner to take cognizance of this fact. Many of the aids to diagnosis are regarded as more far reaching and comprehensive than is the reality; they are looked on as pathognomonic and as, without exception, infallible. This comes about because often earlier reports as to the value of these tests are rosy-hued and conclusions are sweeping and definitely stated. The later observations throwing doubt on the method are slower to get into print and are less likely to attract the attention of the busy practitioner than is the heavy headlined favorable report. Frequently, too, he trusts for his information to a brief conversation with a friend, to an incomplete abstract in a corner of a medical journal, or to a half understood discussion in a medical society; and he grasps at this new supposedly infallible method as he may grasp at the "patent medicine" or the newly-advertised drug that promises to cure so much. How many physicians to-day are treating cases for something else than typhoid because a single serum test, made perhaps early in the disease, has failed to show the specific reaction, overlooking the fact that this reaction is very capricious as to the time of making its appearance, and overlooking, what a few years ago would have enabled them to make a diagnosis, the course of pulse and temperature, the spleen, rose spots, tympany, facies, etc.? Or how many times has the failure to find free hydrochloric acid been regarded as conclusive evidence of carcinoma of the stomach? And who among us has not had his hard fall from placing too great reliance on the presence or absence of leucocytosis? We should remember that many of the tests are not yet clearly understood, that in a sense they are still on probation and still to be regarded as only approximately correct. It is a good thing to have appear occasionally such papers as those of Richard Cabot[2] on the "Limitation of the Urinary Diagnosis", and of Emerson[3] on the "Accuracy of Certain Clinical Methods," the one showing how the interpretation commonly put on certain laboratory findings is not always in accord with the facts as shown by the examination of the patient *intra vitam* or post-mortem, and the other how some of our methods, by many regarded as quantitatively accurate, are in reality subject to a rather wide margin of error.

Unfortunately, some of our laboratory work is still more or less empirical. What Bismarck said about politics, "*Die Politik kann nicht im Laboratorium gemacht werden denn sie hat uberäl mit dem Menschen zu thun*," might be applied, as it has been,[4] to medicine. Medicine cannot be made in the laboratory alone, for it has to do with living man.

Numerous observations may show that there is some general law that lies back of a certain laboratory reaction, but exceptions here and there to the law as tentatively enunciated make the wiser man realize that in dealing with the complex living body the conditions are different from those found in the test tube or the incubator; that his law may after all not be so general and broad as he had supposed, and that great judgment and, in a measure, an empirical judgment must be exercised in interpreting the findings. As Dr. Barker[5] has well said, the science of medicine is only slowly reaching the stage of development when the formation of brief laws — so-called general laws — is possible. We are still largely busy establishing and collecting facts, comparing them and arranging them according to their mutual relations, and only occasionally cautiously venturing to hint at some general law.

Then, again, too often the difference between a positive and a negative finding is not clearly kept in mind. Because no plasmodia are found in the blood on a single, even though careful, search, malaria is not necessarily excluded, though the finding of even a few proves malaria.

This fault that I have just referred to is entirely on the part of the practitioner. The laboratory has reported exactly what it has found; the physician has misinterpreted the finding. Most diseases have yet to be recognized, not by some one symptom or sign that is pathognomonic, but by a *complexus* of symptoms and signs. Nearly all the laboratory findings should be viewed in the same light as important symptoms, greater or less weight being attached to them as we learn from experience or know from their inherent character that they approach the pathognomonic. To illustrate: The finding of typhoid bacilli in the blood is of greater diagnostic value than the Widal test; the latter outweighs in importance the diazo reaction of Ehrlich, and this in turn is of more diagnostic value than the finding of a concentrated urine with perhaps a trace of albumin.

[2] Cabot, R. C.: Bull. Johns Hopkins Hosp., 1903, xv, No. 158.
[3] Emerson: Bull. Johns Hopkins Hosp., Jan., 1903, xiv, No. 142.
[4] Hemmeter: Science in Medicine, Jour. A. M. A., Jan. 27, 1906, p. 244.
[5] Barker, Lewellys F.: Methods in Medicine, Boston, 1905.

The first test is conclusive of typhoid infection — at least, according to present notions — and outweighs anamnesis and physical examination. The Widal reaction, either positive or negative, must be more carefully interpreted because not yet clearly understood, because possibly delayed in making its appearance or perhaps influenced by a typhoid long passed, and, possibly, even due to micro-organisms closely related to the typhoid bacillus; the history of the case and the physical findings must here be taken into account. The diazo reaction found in other conditions than typhoid is so far removed from the category of a specific reaction as to be viewed only as confirmatory and as outweighed by many other findings. A concentrated urine and a trace of albumin are so common in febrile conditions as to lose nearly all real diagnostic importance. The physician must have some reasonably clear conception of the relative importance of these and analogous procedures or his interpretation is liable to be faulty and misleading, even to the extent of grievous error. The laboratory finding must be fitted into the symptom-complex as a cardinal symptom perhaps, but must not be permitted to usurp the position of prime importance unless its inherent nature entitles it to such a position. The fact that its place of birth was the laboratory does not give it such rank that it may look down on the symptom or finding whose origin was the lowly ward bed.

And, lastly, while the laboratory expert shows at times a lack of appreciation of the responsibility he is assuming in expressing his opinion, the physician has no right to throw the entire responsibility of an important decision on the laboratory. The decision in a perplexing case should be a combined one, the men working as colleagues, and each man sharing in the responsibility, each entitled to his reasonable fee.

Now these faults that I have specified are remediable. The solution lies in two directions: first, in a better practical training of the undergraduate in laboratory technic and methods so that he realizes the difficulties, limitations and possibilities of the laboratory; second, in the closer relation between the laboratory expert and the clinician and, when possible, their union in the one individual. The closer the laboratory and the patient the less the liability to error; the less the scattering of responsibility the surer is the responsibility to be met.

To these ends there should be laboratories in our medical colleges for the training of undergraduates, and these should be as closely connected with the wards of the hospital and the clinic as possible. No modern hospital should be regarded as well equipped that does not make provision for a laboratory. The " show room " of the hospital should not be alone the marble wainscoted, well-lighted operating room, but as well the laboratory where material aid is obtained in telling the physician or the surgeon the nature of his patient's illness, or, perhaps after he has operated, telling the surgeon for what malady he operated.

Departmental laboratories are desirable and, on the same principle of keeping the laboratory and the attending staff in close touch and removing the dangers coming from divided responsibility, there should be, when possible, ward laboratories, or laboratories for the individual attending man. And the time will soon come, if it be not already here, when the laboratory of the clinic or the ward must have its subdivisions into chemical, bacteriologic, anatomic, etc.

And in private practice how is it? Ideally each practitioner should have his private laboratory. He attempts it now, thus admitting the truth of the statement, with his few begrimed test-tubes, his bottle of nitric acid and his Fehling's solution and the binocular microscope under that large glass globe on the marble-topped table in front of the window in the parlor. But there are many men, and their number is rapidly increasing, who have a microscope that they use, who are equipped to do in their own offices good work in the examination of urine, blood, sputum, feces, stomach contents, pieces of pathologic tissue, etc. And as they grow too busy to do these things themselves they employ the young man fresh from the college laboratory; and, guiding and directing him, instructing him in the practice of medicine, instructed by him in the later improved methods just taught him in college, they work together, mutually benefiting, keeping up with the times, and exemplifying the union of the laboratory and the clinical side of medicine. But not every man is able to do this or feels that he can afford it. Cannot groups of men combine to employ some young man to do much of this laboratory work? These group laboratories, or what amounted to such, I have seen in small towns where a recent graduate, perhaps not on any salary, was yet the man to whom the other physicians by common consent submitted their specimens for laboratory examination, and because all did it there was no feeling of lowered dignity or of acknowledged inferiority, but perfect harmony, good feeling and mutual profit.[6]

And similarly the county medical society might have its clinical laboratory under the charge of some young man paid a salary or fees for separate examinations who conducts a laboratory to which any member might feel free to go for the help that for various reasons he cannot get in his own office. Laboratories for counties have already been established and, if not too much entangled in politics, ought to be successful, especially in the way of guarding the health of the community and in aiding in the diagnosis of charity cases.[7] In the same way municipal laboratories have become a recognized feature of the modern city, though the carelessness of the political appointee or his incompetence, with that lack of feeling of personal responsibility that comes from the remoteness of the physician and the patient, detract oftentimes from the value of their results. Commercial clinical laboratories in our large cities are of

[6] Cowan, J. R.: Value of Laboratory Methods to the Country Practitioner, BOSTON MED. AND SURG. JOUR., March 8, 1906.

[7] Westbrook: The Public Health Laboratory, Am. Med., March 3, 1906.

great service and have a legitimate place, their value depending on the *personnel* of their staff and on how far they permit the commercial side to overshadow the scientific.

What I would contend for, therefore, is not less laboratory work but more, more for the undergraduate and more for the practitioner. So well trained should our graduate be that certain laboratory procedures of established value should be no more the exclusive property of a select few — the laboratory men — than is the clinical thermometer, the stethoscope or the obstetrical forceps; all should understand and be able to practice them. And I would plead for the closer relation between the laboratory and the patient. Clinical means bedside. Let us have the microscope, the test-tube, the culture medium, the x-ray, at the bedside, making a real clinical laboratory. And not only should there be a training of the physician in laboratory technic, but a training of the laboratory worker in observation of disease. The more familiar he is with illness the better does he understand the import of his decision, the more acutely does he feel the responsibility resting on him and the more helpful does he become as the co-worker of the practitioner. In exceptional cases exceptional laboratory knowledge or skill may be necessary, and can be obtained of some one who has made a special study of some particular branch of pathology, bacteriology, physiology, chemistry, etc., in just the same way that the practitioner in exceptional cases calls for the help of the expert oculist, neurologist, laryngologist or other specialist. Because he asks the opinion of the ophthalmologist on the appearance of a retina is no reason why he should not himself have a practical working knowledge of the use of the ophthalmoscope or why he should not have the final decision as to the nature of the patient's ailment — using the findings of the oculist as one of the cardinal symptoms and the opinion of the oculist as that of a consultant but not necessarily the final arbiter of the case.

And I cannot let this occasion pass without urging that we have care lest we underestimate the value of close observation of the patient himself. Much of this is still empirical, at least in its results, *i. e.*, its interpretation. But the stored-up and collated observations of keen-eyed and keen-brained students of disease, from the time of Hippocrates down to the present, are not to be lightly thrown aside. The laboratory must not be permitted to drive out the arts of auscultation and percussion. Because bacteriology, the microscope and the x-ray often enable us to make an early diagnosis we should not rely on these agencies to the exclusion of the older methods. Rather should we be led to greater care in examination because of the possibility of earlier recognition of disease and more accurate interpretation of slight deviations from the normal, for the laboratory has sharpened our insight into the meaning of signs and symptoms otherwise obscure. To repeat what I have several times said, it is only by the correlation of the results of the examination by all methods that the conclusion is reached as to the nature of an illness.

I might quote from various writers who have recently deplored the tendency to overestimate the importance of laboratory methods at the expense of bedside observation and who urge the more close union of the two methods. Let me cite just two: Von Noorden,[8] well known for his laboratory research, in his inaugural address on assuming the Vienna chair left vacant by the death of Nothnagel, while speaking of the enormous advances made in the way of chemical, microscopic, bacteriologic and electric diagnosis, deplored the fact that auscultation and percussion were treated in a step-motherly fashion and that students were graduated who were only superficially trained in these methods of physical examination, the very foundation stones of practical medicine.

Strümpell,[9] emphasizing the importance of the Rœntgen ray, of bacteriology and of a study of function in diagnosis, warns against permitting the old reliable methods of physical diagnosis to be relegated to the background.

"The fine art of observation of the older physician, the painstaking attention to the minutest changes, the careful consideration of all anamnestic statements of the patients — all this may seem oftentimes trifling and unnecessary to the modern physician. But he is very much in error."

And again:

"Therefore, I think that while employing all the newer methods of examination we should not allow to fall into disuse the art of pure clinical observation, the instrument of the practitioner whose place can be taken by nothing else."

A caution along another line ought also to be given. The use of instruments of precision and of laboratory methods in diagnosis has tended, at least in some quarters, toward a slighting of the study of pathologic anatomy. Changes in the size, shape, consistency and other physical properties of organs with resulting alteration in function, have been, and of necessity must be, the basis for many of our diagnoses. No bacteriologic or blood findings can detract from the detection and identification by physical examination of a large spleen, though the interpretation of such enlargement may be impossible without the study of the blood. There should be as careful comparison of clinical findings with those of the autopsy as in the days of Skoda and Rokitansky.[10] And encouragement should be given any method of diagnosis that tends to

[8] Von Noorden: Antrittsvorlesung. Deut. med. Wochenschr., 1906, xxxii, No. 32, p. 1750.

[9] Strümpell: Eröffnungsrede zum xxiii Kongress für innere Medicin in München. Deut. med. Wochenschr., 1906, xxxxii, No. 18, p. 726.

[10] Concerning the value of the study of pathologic anatomy two European clinicians of prominence, men well versed in the theoretical and practical side of laboratory work, speak as follows: Romberg (Erfahrung und Wissenschaft in der inneren Medicine in therapie der Gegenwart, 1905) says: "For the internist, pathologic anatomy is even to-day indispensable. . . . A thorough study of pathologic anatomy is the best school for the diagnostician." Neusser (Ueber Diagnostik und Therapie in der inneren Medicin, Vienna, 1893) speaks of pathologic anatomy as even to-day the "mistress of our diagnostic art," and says a little later, concerning the value of a control of our clinical work by autopsy: "Even yet the dead speak a language, and this language brings to the intelligent physician at the bedside of his patient calm satisfaction and lends him strength and accuracy."

emphasize a study of function as altered by disease. Pathologic physiology, I believe, will play a far more important rôle in the diagnosis of the future than at present.

And then, in conclusion, we should not look on the laboratory as a short cut to a diagnosis. Sometimes it is, but often its workings are slow and cumbersome, and because of their complexity the results are not easily expressed in practical, every-day usable terms, and are, therefore, inconclusive or confusing. In other words the laboratory diagnosis is not yet one of machine-like accuracy; it is no nickel-in-the-slot affair, if you will pardon the homely comparison. The time has not yet come, let us hope it never will, when a diagnosis can be made without the exercise of brain power. We do not wish our professional work to be degraded by being "dementalized," to use Weir Mitchell's [1] expression. Anamnesis, physical and laboratory findings, are to be studied and compared and a result reached that not only gives a name to the disease but gives us a conception of the disease as it exists in the particular individual, with all that such a comprehensive diagnosis implies in the way of prognosis and hints as to therapy.

Original Articles.

NOTE ON THE ARTERIES OF THE CORPUS STRIATUM.*

BY JAMES B. AYER, M.D., BOSTON,
AND
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Two years ago while studying the gross appearances of arteriosclerosis in the arteries of the brain, we were impressed with the barren descriptions of and the lack of available information relating to the circulation of the corpus striatum.

The plan was then formed to make fresh dissections. These were made and as the result of this work revealed new and interesting material, it was decided to publish an informal report, a part of which is now presented.

The following is a representative textbook description of the circulation of the corpus striatum: The a. cerebri anterior near its base throws off several inconstant branches which go to the caput nuclei caudati; and a group comes from the a. cerebri anterior in the region of, and sometimes from, the a. communicans anterior and pursues a retrograde course to the innermost part of the substantia perforata anterior and thence into the caput nuclei caudati. The a. cerebri media near its base gives off numerous branches, some of which supply the nucleus lentiformis and pass through the capsula interna into the nucleus caudatus, while others supply the thalmus (which also receives blood from the a. cerebri posterior) and one of these is longer than the others and is called by M. Charcot the artery of hemorrhage.

This description has been condensed from the reports of M. Duret in five numbers of *Le Progrès Medical* for 1873 and in the *Archives de Physiologie*, 1874, wherein he published the account of his investigations, though he communicated them to the Société de Biologie on Dec. 7, 1872, which, by remarkable coincidence, was the same day on which Dr. Heubner of the University of Leipzig published at Berlin an account of the circulation of this region which in all essential points was identical with M. Duret's.

J. M. Charcot, in his "Localization of Cerebral and Spinal Diseases," translated for and published by the New Sydenham Society, London, 1883, has by frequent quotation absorbed the above mentioned reports of M. Duret to such an extent that one cannot readily separate them; therefore M. Charcot will be referred to with the understanding that all relating to the circulation shall be accredited to M. Duret.

The published illustrations of the circulation of the corpus striatum are quite misleading. By following M. Duret's first drawing, they have been drawn invariably in cross section, though one can readily see from his description that they should be shown in sagittal section — for although the arteries of the corpus striatum enter the substantia perforata anterior in an order that is about at right angles to the fissura longitudinalis cerebri, those predominating at once bend outward toward the exterior wall of the nucleus lentiformis, and in so doing spread out, some going frontward and some backward, thus forming a "fan," so that their collective position is at right angles to that formed at their entrance of the substantia perforata anterior and parallel to the fissura longitudinalis cerebri.

M. Charcot's method of approach in dissecting out the arteries "consists in removing successively the gray matter of the island of Reil, the subjacent white substance, the claustrum and, lastly, the external capsule. In this manner the external surface of the lenticular nucleus is exposed in its whole extent. By means of this preparation they are seen to be arranged like a fan on the surface of the gray nucleus."

This method was followed in a general way, and it was noticed that these arteries formed themselves into three groups, each supported by one larger artery, there being one artery a little more than 1 mm. in diameter, taking a backward course, one medianward and one frontward; with these are several smaller arteries which grouped themselves in a manner suggesting the slats of the "fan."

These three groups will be referred to as
Group 1, which spreads frontward.
Group 2, medianward, and
Group 3 will be that which runs backward.

The present description will be confined to Group 1.

The arteries thus exposed were presumably from the a. cerebri media and an attempt was made to classify these three divisions and see if there were any precise order in which they were thrown off from the a. cerebri media.

[1] Mitchell, S. Weir: The Early History of Instrumental Precision in Medicine. New Haven, 1892.

* These anatomical investigations, which are being conducted by Mr. Aitken, are a prefixed portion of a study on arteriosclerosis.

BOSTON MEDICAL & SURGICAL JOURNAL.

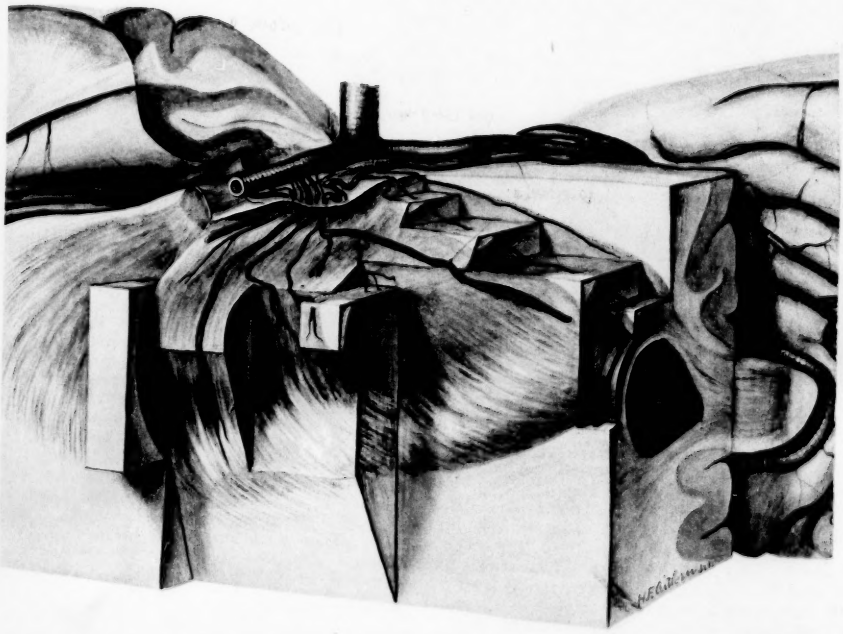
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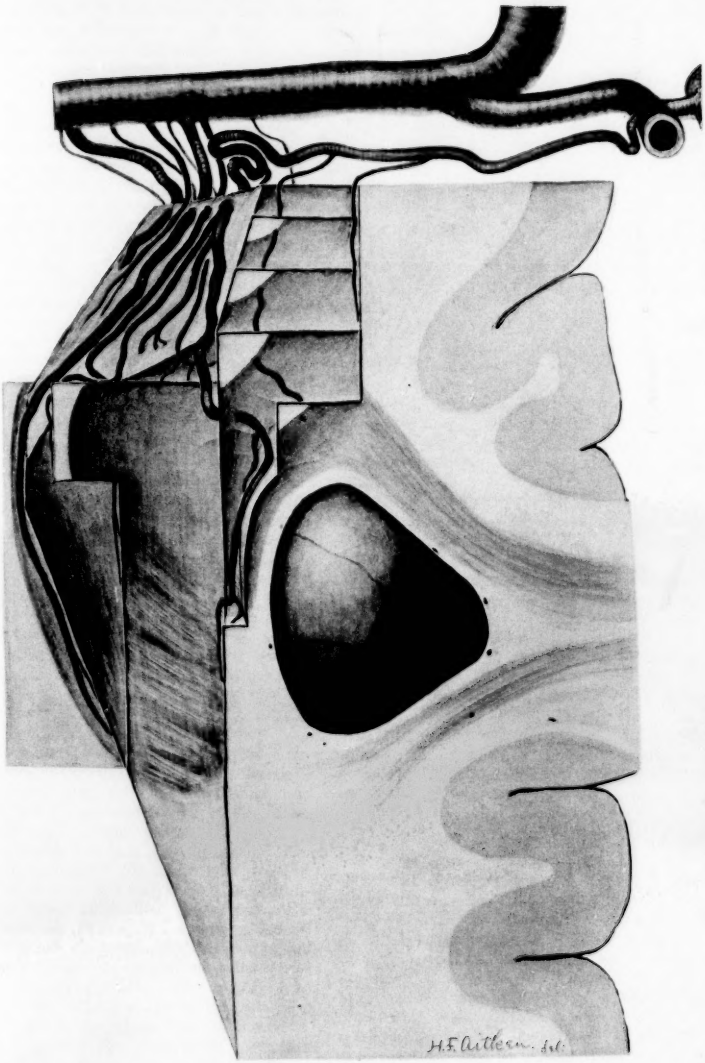
H. F. AITKEN, DEL.

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To accomplish this it was necessary to follow each artery to its origin in the a. cerebri media.

Between the substantia perforata anterior and the trunk of the a. cerebri media there is a tangled and confused mesh of pia mater and vessels, and in tracing one of these little arteries through this snarl without losing or breaking it, or destroying any of the adjacent and sometimes adherent vessels, is a tedious and difficult task.

Had M. Duret and M. Charcot traced these vessels to their origins, they would not have written the following:

"The predominant share of the circulation of the corpus striatum belongs to the sylvian artery which supplies: (1) the greater part of the caudate nucleus; (2) all of the lenticular nucleus; (3) a portion of the optic thalmus; (4) the whole extent of the internal capsule. The anterior cerebral, on the other hand, has a very unassuming position in this system. It furnishes twigs to the head of the caudate nucleus only and even this distribution is not constant."

This statement regarding the relative importance of these two arteries is repeated throughout the writings of these authors and has been preserved in anatomical textbooks.

While one hesitates to dispute such well established authorities, the dissection of numerous brains made evident the need of modifying the statement when it was found that Group 1 had its origin in the *a. cerebri anterior*.

The main artery of this group has its course in the a. cerebri anterior, directly opposite the a. communicans anterior. It starts backward on the superior surface of the a. cerebri anterior and is sometimes adherent to it, and is not visible unless the a. cerebri anterior is freed from it and drawn to one side. It can then readily be traced back to the bifurcation of the a. carotis interna where it takes an outward turn and follows the a. cerebri media and enters the tangle of the pia mater and vessels that lie between the a. cerebri media and the substantia perforata anterior.

This artery differs from the other arteries of the corpus striatum by giving off branches before it enters the substantia perforata anterior. As soon as it takes the outward turn at the bifurcation of the a. carotis interna it sends a branch through the substantia perforata anterior into the inferior surface of the nucleus lentiformis, and remaining close to the surface it passes frontward into the lower portion of the caput nuclei caudati. Near this branch the artery gives off a similar branch which takes a parallel course and is a little longer, ending in the nucleus caudatus at its extreme anterior portion. The greater portions of these two branches are in the putamen and supply it with minute branches. The artery, just before it enters the substantia perforata anterior, sends one more branch which spends itself in the putamen.

The artery itself then goes through the substantia perforata anterior into the nucleus lentiformis where it gives out several branches that are more or less confined to the putamen, though sometimes they enter the capsula interna; it then changes its course to one more anterior, sometimes bifurcating, and continues to the capsula interna through which it passes into the nucleus caudatus to its extreme anterior part. It here breaks up into numerous branches, some of which turn back along the cauda nuclei caudati, while others enter and end in the capsula externa.

This description is founded on the dissection of 25 brains in which the artery was found on both sides in 100% of the cases, though there were a few cases where this artery was not so highly developed as is described above. In such cases the remainder of the circulation was taken up by the a. cerebri media.

There can be little doubt that M. Charcot has described the main trunk of this artery after it has entered the brain, and both he and M. Duret, if they speak of the first three branches, describe them also as coming from the a. cerebri media. M. Charcot says:

"An artery is of special importance from its size and from the pre-eminent part which it plays in the intra-encephalic hemorrhage. We should in a manner be justified in styling it, *the artery of cerebral hemorrhage.*" "After penetrating the lenticular nucleus it gains the substance of the caudate nucleus by crossing the upper part of the internal capsule. It then continues forward and extends to the most anterior part of the caudate nucleus."

The three plates show the bases of the brains in superior positions, necessitated by the requirements of light and shade. They are drawn in a manner that is somewhat diagrammatic. Plate I is about actual size, showing the situations of the insula; the hippocampus; the chiasma opticum; the cornu anterius ventriculi lateralis, etc., in relation to the corpus striatum. Plate II is enlarged one diameter; groups 1 and 2 are easily distinguishable. Plate III is a front view of the same dissection shown in Plate II and is enlarged three diameters above actual size.

We wish to here thank Dr. J. H. Wright for his valuable advice and Dr. Oscar Richardson for generously supplying material which made possible our work in this region.

PNEUMATURIA, WITH REPORT OF A CASE.

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PNEUMATURIA may be defined as the passage of free gas with the urine, either during micturition or on catheterization. The earliest case on record is probably that quoted by Raciborsky, from the "Curiosities of Nature," of 1671, in which there is mentioned "a leading citizen of Gotha who was afflicted by anal colic, with rumbling, tension of the abdomen, pain about the naval and, what is strange, wind was passed by the penis as if through the usual and accustomed channel, sometimes with, sometimes without, urine.*

* "Est vir primarius hic Gothæ, qui collica per anum affligitur, cum borborygmis, tensione abdominis, doloribus circa umbilicum, et quod peculiare est flatus per penem quasi solemni et consueta tunc excernuntur via, saepe cum, saepe sine urina." Miscellanea curiosa, decuria prima, annus, secundus, p. 85.

In the same connection is quoted a statement that Ribes, when prosector to the Medical School at Paris, showed his students an infant whose only malady was the passage of gas by the penis ("*qui n'avait pour toute maladie que cette émission de gaz*"). The urine was stated to be in no way decomposed, but apparently that of a healthy individual.

The first case, however, to be described in any detail, was that reported by Raciborsky[1] in 1860. The patient, a neurotic and hypochondriac man, of forty, came complaining of pneumaturia. On catheterization a free flow of urine was obtained, followed by bubbles of a gas which upon analysis was pronounced to be nitrogen. The urine was examined and pronounced normal, although, of course, no examination that would be satisfactory to-day was then possible. The pneumaturia disappeared spontaneously.

All the cases reported within the next twenty years were more or less brief notices of vesicorectal fistula in which rectal gases entered the bladder and were passed with the urine.

Two cases reported in 1882, by E. L. Keyes,[2] are of more interest. The first was that of a man of sixty-seven with prostatic hypertrophy, and the usual symptoms of obstruction and cystitis, who occasionally passed gas with his urine. No careful examination of gas or urine was made. At the autopsy the rectum was found normal, there being in particular no communication between gut and bladder. At the time, this report aroused much interest, all cases of pneumaturia being then interpreted as due to the passage of intestinal gases into the bladder. The second case was very similar, but somewhat less interesting, there being some inflammatory thickening of the vesico-rectal septum and the possibility of a vesico-rectal fistula being not excluded.

Guiard[3] and Dumenil[4] were the first to point out the relation between pneumaturia and diabetes mellitus and to show that glucose may, under favorable circumstances, undergo the some fermentation within the bladder that it does without. C. H. Ralfe,[5] in 1887, reported such a case. The patient, a middle-aged man, had been treated for an aortic lesion for some time. His urine had always been normal. Compensation failing he was put to bed. Delirium developed, he became very drowsy, and apparently had some urinary retention. The urine was found to contain sugar, with a specific gravity of 1,024. An hour later another specimen was passed with a considerable quantity of gas. This urine had a specific gravity of 1,040, and contained 3% sugar. The glycosuria and with it the pneumaturia then disappeared not to recur.

Müller,[6] in 1889, reported a case in an old man with diabetes mellitus and prostatic hypertrophy. The urine obtained by catheterization was acid, contained much pus, many bacteria, sugar varying from 0.6 to 2.5%, and bubbles of a gas that on analysis was found to consist chiefly of hydrogen. The latter indicated a bacterial fermentation of the glucose, though no bacteriologic examination was made. Senator's[7] case, on the other hand, reported two years later, is of interest in being probably the only case on record in which the gas producing agency was yeast.† The patient, a man aged sixty-six years, had for eight years been a diabetic. Early in 1889 a prostatic enlargement with cystitis, developed. He was compelled to use the catheter, and soon noticed that bubbles of an odorless gas passed with the urine. In the fall of the same year there was nearly constant pneumaturia and in November he died of diabetic coma. The fresh urine was always acid, contained much pus, little albumin, sugar varying from 1.95% to 3.3%, and considerable quantities of alcohol. The gas consisted of nearly pure CO_2, and the urinary sediment contained, beside the pus, only large quantities of beer yeast.

Van Loghem[8] has reported a case of diabetic pneumaturia, due to still another micro-organism. In his case, the intravesical fermentation of the sugar was due to the Bacillus proteus vulgaris.

A much more interesting form of pneumaturia is that in which the urine is free from sugar, but in which, there being a cystitis present, it contains albumin and pus, and is alkaline in reaction. The first case of this kind to be reported in a satisfactory manner was that of Tisné,[9] in 1887. The patient, a man of seventy-seven, with a large prostate, was passing a fetid, ammoniacal urine. On catheterization, urine was first obtained, then gas bubbles alternating with spurts of urine. This phenomenon was observed five times in ten days, the amount of gas varying inversely as the improvement in the condition of the urine. During the next two and a half months the pneumaturia occurred twice, became constant when a left perinephritic abscess appeared, but ceased permanently after operation. At no time did the urine contain sugar. No bacteriologic examination was made.

Schnitzler's[10] case, reported in 1894, was similar. His patient, a woman forty-six years old, complained of pain on urination. Since the fall of 1893, she had had pneumaturia, and when catheterized for the first time in December of that year, much gas was said to have passed with the urine. When first seen by Schnitzler, the bladder was tympanitic, the urine was acid and contained much pus, a little blood, albumin to correspond, no sugar, much gas. She remained in the hospital one month, voiding bubbles of gas with her urine, whether catheterized or micturating spontaneously. The urine contained in pure culture a bacillus, wrongly thought by him to belong to the coli group, producing gas in sugar-free culture media, pathogenic for guinea-pigs and encapsulated when obtained from the spleen of these animals. When injected into the bladder of animals, however, it did not produce a pneumaturia, even in the presence of a cystitis, unless a glycosuria had been produced by phloridzin injections and the urethra ligated. When inoculated into normal urine, or into that of the patient, no gas formation took place. When, however, blood was added to the urine to be inoculated, a very slight gas formation sometimes occurred.

Our real knowledge of this form of pneumaturia dates from the exhaustive monograph of Heyse.[11] His patient was a young woman who, in January, 1893, was admitted to Leyden's clinic, with transverse myelitis, that rapidly ascended until there was complete paraplegia involving the legs and the abdominal muscles. Both rectum and bladder were paralyzed, the sphincters as well as the detrusor vesicæ sphincters, so that the patient had to be catheterized three to four times daily. There was some vaginal leucorrhea. The urine, at first entirely normal, soon became turbid, as a severe cystitis set in. On the following day the hypogastrium was seen to be occupied by a round tumor, the size of a child's head, over which percussion gave a tympanitic note. Upon the introduction of the catheter, a little urine escaped followed by large quantities of gas. The tumor grew softer, but did not disappear. On the following days it steadily increased in size until it reached the umbilicus. Large quantities of gas escaped

† Naunyn (Der Diabetes Mellitus, Nothnagel, 1898, p. 203) mentions a diabetic whose urine, usually rich in sugar, was for a time passed in an active state of fermentation, no sugar being demonstrable, but the urine containing a little alcohol and much yeast. He does not, however, specifically state that the phenomenon of pneumaturia occurred.

with each catheterization, but it was only when the bladder was thoroughly irrigated by means of a return flow catheter that it could be so completely emptied of its gaseous contents as to be invisible for a few hours. At this time the urine was alkaline in reaction, contained much pus, blood, bladder epithelium, mucus, and had a peculiar moldy odor. The amount of gas present in the bladder was estimated at from 60 to 80 cc., of which, however, only small quantities could be obtained for analysis. It was found to consist chiefly of CO_2 and H_2. Sugar and yeast cells were always absent. The pneumaturia resisted all treatment, being absent in all only eight days between Jan. 19 and March 3. On the latter date the patient succumbed to a bronchopneumonia. At the autopsy the bladder was found much dilated and full of gas. There were a few bubbles in the right ureter and in the pelvis of the right kidney. The bacillus responsible for the pneumaturia was found in the bladder, the left ureter, the pelves of both kidneys, the transverse colon, the lower portion of the ileum and in the vaginal secretion. In its cultural characteristics it closely resembled Escherich's Bacillus lactis aërogenes and was probably identical with it. It consisted of short thick rods, with rounded ends, not motile, decolorizing according to Gram. It grew vigorously on all the usual culture media, produced much gas in nutrient agar or gelatin, in milk and on potato, coagulated milk in twenty-four hours; no capsule formation is described. An interesting feature of this case is the probable mode of infection. Since the same bacillus that was responsible for the pneumaturia was found, not only in the intestine, where it is not an unusual inhabitant, but also in the vaginal secretion, it seems probable that the latter was infected from the former on account of the *incontinentia alvi*. With the frequent catheterization, it was hardly possible to avoid infecting the bladder from the vaginal discharge. The presence of the bacillus in ureter and kidneys is readily explained as an ascending infection.

During the past twelve years very few cases of pneumaturia of this sort have been reported. Baccari,[12] in 1899, described a case in which for five months gas was passed at the end of urination. The patient had never been catheterized and the mode of infection could not be ascertained, there being no rectovesical fistula. The urine was usually acid, turbid, contained no sugar, but 0.05% albumin and considerable pus. Culturally a few colonies of Staphylococcus pyogenes aureus grew and about twenty times as many of a motile bacillus, closely resembling the Bacterium coli commune but not identified in detail. Some years later, in 1901, Wildholz [13] reported a case in a man of fifty-two, with gonorrheal stricture of the urethra. The urine contained no sugar, but 0.15% of albumin. The pneumaturia was found to be due to a bacillus that was identified as the Bacillus lactis aërogenes. The patient was put to bed on a nephritis diet. The albuminuria soon disappeared, and with it the pneumaturia.

More recently two cases have been reported by Wiesinger [14] and Gottstein,[15] in both of which the pneumaturia was due to a rectovesico-rectal fistula, produced by the perforation into rectum and bladder of an abscess in the vesicorectal septum.

Early in 1907, four cases of peculiar interest were reported by Adrian and Hamm.[16] They may be briefly summarized as follows:

Case I. Male, sixty-six years old, is said for twenty-two years to have had a hard tumor in the left iliac fossa. For several years there had been nocturnal urination and, of late, attacks of frequent micturition. On Jan. 15, 1906, violent bladder pain set in and symptoms pointing to urinary retention. The patient was catheterized, but the bladder found empty. Some forty-eight hours later, the urine, which had hitherto always been clear, became turbid, there was marked strangury, and an odorless gas was passed, chiefly towards the end of micturition. Three days later, a careful physical examination revealed only a hard tumor in the left iliac fossa and just palpable per rectum. The urine was acid, contained a little albumin, no sugar, much pus, little blood, and Bacterium coli commune in pure culture. Under treatment the cystitis improved, the hematuria disappeared, but the pyuria and pneumaturia persisted, the latter ceasing on only one occasion for thirty-six hours. In March, 1906, feces began to be passed with the urine, the pneumaturia still being very marked. Four months later, intractable diarrhea set in, the patient became cachectic, and died on Sept. 8. The tumor had increased greatly in size, and had apparently produced metastasis in the liver. There was no autopsy, but the diagnosis of rectal carcinoma leading finally to recto-vesical fistula seemed inevitable.

Case II. A woman, aged sixty, multipara, had always enjoyed good health. In November, 1905, without known cause, frequent painful urination set in, and in December the urine became turbid. In February, 1906, an odorless gas began to be passed with the urine, often with considerable noise. The patient had never been catheterized, and there had never been symptoms of urinary retention. In March, a physical examination revealed merely a hard, nodular mass in the region of the left ovary and indurated inguinal glands on the same side. A cystoscopic examination showed merely a severe cystitis. The urine was acid, turbid, contained a little albumin, no sugar, much pus, a little blood and Bacterium coli commune in pure culture. Under treatment, the patient became subjectively more comfortable, but objectively there was no change. The pneumaturia in particular persisted. In May, the urine took on a fecal odor, and when seen again in July, the patient was emaciated and cachectic. The pneumaturia had ceased, but the urine, besides blood and pus, contained fecal matter. The ultimate diagnosis, while still obscure, was a vesicorectal fistula, due to some deep-seated bowel trouble. In this case, however, as in the previous one, the occurrence of pneumaturia antedated by several months the formation of a vesicorectal fistula.

Case III was a woman, nullipara, aged thirty-five. In March, 1906, she had violent attacks of what was said to be cholelithiasis, occurring at intervals for three weeks. During convalescence she suffered from frequent, painful micturition, which became progressively more severe. In April, the strangury had become excessive. The urine was turbid and contained much mucus. Towards the end of April, pneumaturia set in, especially towards the end of micturition. The patient had never been catheterized. When first seen, in May, physical examination was practically negative. The urine was turbid, acid, contained albumin, no sugar, much pus, no blood or casts. A single bubble of gas escaped with the last few drops of urine. Bacteriologically a pure culture of Bacterium coli commune was found. The pneumaturia persisted with varying intensity as long as the patient remained under observation.

Case IV is somewhat less striking in this respect. The patient, male, aged twenty-seven, had a hypospadias. In April, 1906, without known cause, a urethral stricture developed and led to a penoscrotal abscess resulting in the formation of three urinary fistulas. When seen in May, he was told to urinate. At the end of micturition, a considerable amount of odorless gas escaped from the meatus as well as from the three fistulous openings. This was the only occasion on

which this phenomenon occurred. The urine was acid, turbid, contained pus, a few casts, no blood, and Bacterium coli immobile in pure culture. The patient was later found to have an orthostatic albuminuria.

The following case was observed in the gynecologic clinic of the Washington University Hospital in the service of Prof. H. S. Crossen, with whose kind permission I was enabled to make a study of the urine. I am indebted to the first assistant, Dr. F. J. Taussig, for the clinical notes.

Mrs. G., colored, aged thirty-four, multipara, came to the clinic in January, 1904. For some nine months she had suffered from back-ache and from profuse vaginal discharges, always purulent, sometimes bloody in character. On examination, a carcinoma of the cervix uteri was found involving a considerable portion of the posterior and left vaginal fornix with some infiltration of the left parametrium. She was admitted to the Provident Hospital, where a radical panhysterectomy, with removal of the parametrial connective tissue, was done by Professor Crossen. As is usual after such operations, the patient was unable to void urine spontaneously, and catheterization at regular intervals became necessary. The urine itself at this time was entirely normal, in particular free from sugar, albumin, blood and pus. On the sixth day after operation, the urine became cloudy and when on the following day the catheter was introduced as a preliminary to vesical irrigation, the urine was expelled, alternating with bubbles of an odorless gas. The pneumaturia continued for ten days, at first increasing in amount, then slowly growing less and finally ceasing. During the last few days of this period the patient again became able to micturate spontaneously and regular catheterization was discontinued. The patient herself was not able to perceive the escape of gas from the bladder when urinating, probably because of the presence of considerable pain and tenesmus which completely occupied the attention of the not very intelligent woman. Whenever the catheter was introduced, however, the escape of considerable gas could be observed. First came a varying quantity of turbid urine, then puffs of gas interrupted the flow of urine and, finally, a quantity of frothy urine. For two weeks the patient's bladder was irrigated daily with a 4% boric acid solution and, at intervals, for a month longer. The cystitis gradually ceased and the patient made a good recovery. Two months later the cystitis recurred, this time without gas but with the usual alkaline, purulent urine, and continued until the patient's death, from recurrence of the cancer and from tuberculosis, nine months after the operation. The complete autopsy findings, which were interesting in another direction, will be published elsewhere. Suffice it here to say that the bladder showed only the characteristics of long-continued cystitis. Neither at the autopsy nor previously was there any indication of the existence at any time of a communication between rectum and bladder.

The urine obtained during the period of pneumaturia was fairly uniform in character. It was usually faintly acid in reaction, always very turbid and had a specific gravity varying in the neighborhood of 1,020. It was free from sugar, contained albumin corresponding in quantity to the large amount of pus present, a few red blood cells, no casts. The sediment contained great numbers of a short bacillus, corresponding in appearance to that described below, and apparently in pure culture. No tubercle bacilli were found. A number of samples of urine were plated out on nutrient agar, both aërobically and anaërobically. In all cases, but one micro-organism was found. The latter evidently identical with that observed in the urinary sediment, was a short, thick bacillus with rounded ends, in young cultures often so short as to resemble a micrococcus. It was slightly motile, grew readily on all the ordinary culture media, and produced no spores. It stained readily with aniline dyes, and was decolorized according to Gram. On gelatin, it formed heavy, rapidly growing, non-lignifying colonies, of the typical appearance of coli cultures. On potatoes, it grew somewhat less luxuriantly than is usual with coli commune, and never formed gas bubbles. Milk was promptly coagulated with the formation of acid; gas production was not observed on this medium. In neutral-red-glucose agar, gas was produced, and the red color changed into a fluorescent green. Small but distinct amounts of indol were produced in bouillon cultures.

A peculiar behavior was noted when stab cultures were made in nutrient agar or gelatin. About the third day after inoculation, one or two small gas bubbles appeared to one side of the stab. These rapidly grew in size, other smaller ones appearing elsewhere. In the course of a week or ten days, these bubbles were again slowly absorbed. While the media used for these stab cultures were not certainly free from sugar, they were made from meat that had lain for several days, and in which the sugar had presumably disappeared. At all events, control cultures, made in other tubes of the same stock of media, with typical coli bacilli obtained from stools, showed no such gas formation. In successive generations, the bacillus seemed rapidly to lose its power of producing gas in ordinary nutrient gelatin and agar, so that the cultures in my possession a few weeks later behaved like the ordinary coli bacillus.

Various attempts were made to imitate the intravesical formation of gas by inoculating fermentation tubes filled with normal urine, nephritic urine, cystitic urine, etc., as well as with the urine of the patient herself. No gas formation could ever be obtained, a result which is at one with the experience of all other observers. Animal experiments were not made.

A number of attempts were made to obtain some of the gas for analysis, but a sufficient quantity could never be collected. Fermentation tubes were filled with water and the end of the catheter introduced through the bulb into the vertical arm, while the urine was flowing. The gas that bubbled up into the end of the tube evidently consisted in part of CO_2, for on introducing into the tube a solution of NaOH, a small portion (roughly one fifth) of the gas was absorbed. Whether the rest of the gas was hydrogen or not remains uncertain; certainly, on applying a match to the gas as it escaped, no flame was visible.

A consideration of the above observations show that cases of pneumaturia can be divided into two groups. The entrance of atmospheric air into the bladder during the catheterization, irrigation, etc., need not be considered, as it involves no pathologic change.

The first group consists of those cases of rectal cancer or tuberculosis in which a vesico-rectal fistula is established. Here the pneumaturia may be caused either by the direct passage of rectal gases into the bladder, or, more usually, by the entrance into the bladder of fecal matter with its accompanying micro-organisms, whereby intravesical putrefaction and gas formation is brought about.

In the second and more important group of cases, there is no such lesion; but the urine itself

is fermented with the production of gas. Here again, two sub-groups must be distinguished,—the the diabetic and the non-diabetic. In the former the glucose is fermented with the production of CO_2, occasionally by means of yeast, more usually by the Bacterium coli commune, rarely by other bacteria. In the non-diabetic cases, the albuminous urine of cystitis is fermented with the production chiefly of CO_2 and H_2.

It is this last class of cases that is of chief clinical and bacteriologic interest to-day. Only 8 cases have been studied with sufficient care to justify any conclusions as to the nature of the micro-organism responsible for the conditions. The 3 cases reported by Schnitzler, Heyse and Wildholz were clearly due to the Bacillus lactis aërogenes of Escherich, an organism closely resembling the members of the coli group, but characterized by the production of slime, by capsule formation and especially by the vigorous production of gas on all ordinary culture media. The four cases of Adrian and Hamm were due to the Bacterium coli commune (or the closely related Bacterium coli immobile). The bacteriologic position of my case seems somewhat doubtful. In all essentials my micro-organism was a Bacterium coli commune. It resembled the Bacillus lactis aërogenes, however, in that the first few generations on artificial media were able to produce gas on ordinary nutrient gelatin and agar. If, as is generally held by bacteriologists, the Bacillus lactis aërogenes and the Bacterium coli commune belong to radically different families my bacillus must be classed with the latter. On the other hand, if Jensen [17] and Abel [18] are right in maintaining the close relationship between these two forms, my micro-organism may well represent an intermediate type.

For the production of a pneumaturia, then, the existence of two factors seems essential, and that of a third one nearly so:

1. It is clear that when the gas is produced by means of intravesical fermentation, the presence of a fermenting micro-organism, whether yeast or bacterium, is essential. This micro-organism may enter the bladder in one of three ways,—through the blood stream, directly through the tissues from the rectum, or through the urethra in the process of catheterization. The last two methods are probably the most usual ones.

2. The urine must contain a substance capable of being split up by means of fermentation with the production of an unabsorbable gas. Where there is glycosuria, the case is simple enough, the sugar being broken up, setting free CO_2, which cannot be absorbed by the acid urine. In ordinary ammoniacal fermentation of the urine, on the other hand, as well as in putrefactive decomposition with formation of H_2S, pneumaturia hardly ever results, on account of the solubility of the gases formed in the decomposed urine. When the urine contains the Bacillus lactis aërogenes, on the other hand, the albuminuria, due to the inevitable cystitis, furnishes a culture medium in which this bacillus is able to produce gas. In those cases, however, in which the process is apparently due to the Bacterium coli commune, the method of gas production is still very obscure. If the ordinary albuminuria of cystitis and the ordinary Bacterium coli commune were alone responsible for the occurrence of pneumaturia, this condition would be far less infrequent than it is. Either the urine in these cases must contain some unusual albuminous constituent, capable of yielding a gas when attacked by coli bacteria, as suggested by Adrian and Hamm, or the strain of coli responsible for the pneumaturia must have abnormally great gas-producing powers. The latter explanation seems the more probable.

3. It is significant that in the great majority of all cases of pneumaturia hitherto reported there existed some interference with the urinary outflow, due either to obstruction or to vesical paralysis. In most of the cases there was an actual anatomic obstruction, such as urethral stricture, enlarged prostate and the like. Raciborsky and Schnitzler do not specifically mention any obstruction, but since their patients required catheterization, the existence of such a lesion may be inferred. In Heyse's case and in mine, the bladder was unable to empty itself on account of vesical atony. The first three cases of the group by Adrian and Hamm alone seem to be exceptions to this rule. In none of them was there apparently any obstruction to the outflow of urine.

The prognosis in cases of pneumaturia depends upon the condition responsible for the gas formation. In the diabetic cases, if the glycosuria can be made to disappear, the pneumaturia also will cease. In the nondiabetic cases, the gas production sometimes ceases spontaneously, and always, as in my case, disappears when the cystitis gets well. More usually, however, both cystitis and pneumaturia prove intractable. In its effect upon the patient's general health the pneumaturia is of no more significance than the cystitis to which it is due.

The above considerations also govern the treatment. In diabetes, the urine must be made sugar-free; where interference with the urinary outflow plays a part, this condition must be treated. In other respects the treatment of the pneumaturia is that of the accompanying cystitis.

The conclusions to be drawn from the above considerations may be summarized as follows:

1. Pneumaturia may occur either as the result of a rectovesical fistula or of intravesical fermentation.

2. In the latter type, the gas may originate either from the fermentation of glucose in diabetes, or from the decomposition of proteid substances in cystitis.

3. Of the nondiabetic cases, the micro-organism responsible for the pneumaturia has been isolated in only eight cases: in three, it was the Bacillus lactis aërogenes, and in five (including the one reported above) the Bacterium coli commune (or immobile).

4. In pneumaturia due to the Bacillus lactis aërogenes, the gas formation is readily referable to the peculiar characteristics of the bacillus.

5. In pneumaturia due to the Bacterium coli commune, the gas formation may be due:

a. To the presence of some proteid, not yet definitely determined, that yields a gas when broken down anaërobically by the Bacterium coli commune, as suggested by Adrian and Hamm, or

b. To the presence of a peculiar strain of Bacterium coli commune that is capable of producing gas where the usual varieties fail to do so.

6. The fact that the bacterium isolated from my case had in its earlier generations an abnormal gas-producing power on ordinary culture media lends support to the second hypothesis.

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THE REPAIR OF CYSTOCELE.

BY EDWARD REYNOLDS, M.D., BOSTON.

THE repair of cystocele, formerly the least satisfactory of all the plastics, has of late become an exceedingly successful operation, not as the result of any single new procedure but as the result of a new understanding of the mechanical and anatomical conditions involved. This has been reached gradually through the labors of numerous observers, prominent among whom may be mentioned Dr. J. R. Goffe, of New York, and Dr. E. C. Dudley, of Chicago. Since the success of the modern operations is based upon their relation to the anatomy, any description of even one of them must necessarily be prefaced by a recapitulation of the anatomy of the normal vagina and of cystocele.

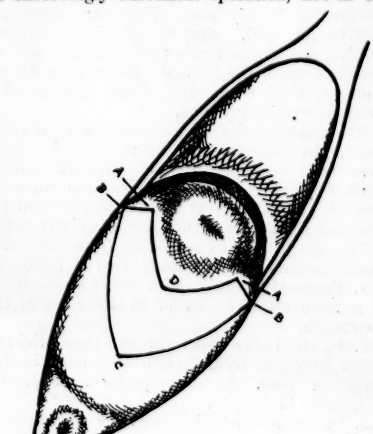


FIG. 1.

If we consider a cross section through the pelvis at right angles to the axis of the vagina we shall see, proceeding from before backwards, first the mucous membrane of the bladder, then the submucous muscular tissue, then a loose connective tissue which attaches the bladder lightly to the next layer, the strong muscular and fascial tissues of the anterior vaginal wall; next come the mucous membranes of the anterior and posterior vaginal walls, the submucous tissue of the posterior wall, connective tissue, and the rectum, successively. The vagina lies in the pelvis as a transversely flattened tube, *i. e.*, with its anterior and posterior walls in contact with each other, and its so-called H shape is due to the fact that the free edges of the H receive its only firm attachments to the surrounding structures. By far its firmest attachments are inserted into these edges near its upper and lower extremities. If we look at the familiar mesial section of the pelvis we note at once the so-called S curve of the normal vagina. This, like its transverse flattening, is due to its attachments. At its lower end, and indeed throughout almost the whole of its lower third, it receives the insertions of the levator ani and its allied muscles, which hold it upward and as a whole draw it forward behind the pubes. These insertions form by far the strongest attachment of the anterior wall, and even in the most extreme cystoceles this lower fixed point is seldom lost, being almost invariably, if not always, marked by a transverse fold between the distended and descending cystocele and the fixed post-urethral plate. The upper fixed point in the lateral fornices at the side of the cervix is derived from the very strong band of muscular and connective tissue fibers which pass down through the base of the broad ligament along the course of the uterine arteries to be inserted into the sides of the cervix and into the vault of the vagina in the same lateral plane. Every operator knows that this is the only part of the attachments of the genital canal to the pelvic bones which cannot be readily separated with the finger, except those of the levator ani already referred to. This attachment is never lost, but in cases in which cystocele is complicated by prolapse of the uterus these supporting bases of the broad ligaments may be so much overstretched that the cystocele cannot be satisfactorily repaired unless the uterus has been previously or coincidently operated upon. Many operations have been devised for this purpose, but it is best that we should restrict our present subject to the repair of uncomplicated cystocele.

Cystocele is anatomically a hernia of the bladder

through the ring formed by the four attachments of the anterior vaginal wall (the upper and lower fixed points and the comparatively fixed lateral edges) and this hernia is effected by thinning and distention of the tissues of the anterior vaginal wall before the descending bladder. It usually begins at the upper end of the wall and extends progressively downwards.

The fault of the old operations for cystocele was that they trusted to a mere denudation of the surface of the already distended and weak vaginal wall, after which their sutures inverted the coverings of the hernia through the ring and trusted to the mere union of these inverted surfaces to hold them in. In no other situation in the body would any sane surgeon dream of excoriating

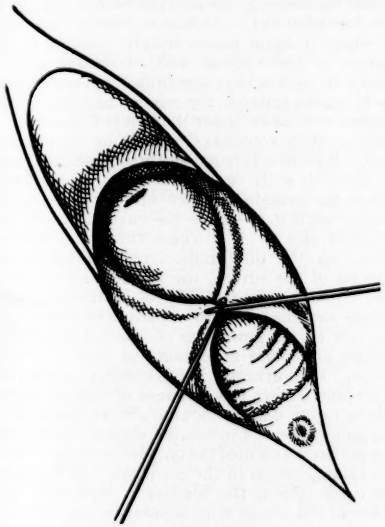


Fig. 2.

the surface of the coverings of a hernia, invaginating them into the ring, and trusting to their superficial union to restrain the hernia from reformation. On the contrary, it is an accepted principle in all other herniæ that we should dissect off all the weakened coverings of the lesion until firm fascial edges are brought into sight, and after inverting the hernial sac itself, should then attempt a radical cure by a suture of these strong, exposed, fascial edges directly to each other. This is the principle which underlies the new operations for the repair of cystocele.

It only remains for me to describe to you the technique of the operation which I myself use and I shall then have the pleasure of performing it before you.

Fig. 1 represents a cystocele exposed through a Sims speculum, and the six points indicated by letters are the guiding points in the denudation. The proper selection of these points is the first and most important step in the operation. The points A, A′ lie upon the lateral vaginal wall as close as possible to the cervix uteri.[1] The points B, B′ lie directly lateral to A, A′, or very slightly anterior to them, and upon their correct selection rests the whole success of the operation. (It must be remembered that although in the illustration the points B, B′ necessarily appear directly lateral to A, A′ they are in reality a short way down the lateral wall of the vagina when in its natural position.) These points B, B′ should be selected by the following method: a point which appears to the eye to be at about the proper position is seized with a tenaculum and drawn to the median line immediately in front of the cervix, which is, perhaps, pushed a little backward into the hollow of the sacrum by the manœuver. (Fig. 2.) If the point selected cannot be drawn into the median line without undue tension one a little further from point A should be selected. If it can be carried beyond the median line one a little nearer to A should be

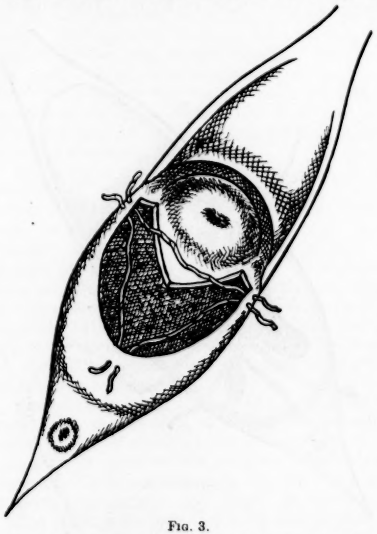


Fig. 3.

chosen. The exact selection of these points B, B′ is of extreme importance. If the points B, B′ are too far from the points A, A′ the resulting union will be too low upon the anterior vaginal wall to be effective in the cure of cystocele and will leave a cicatricial bridge which will narrow the vagina too much and interfere with subsequent labors. If B, B′ are too near A, A′ the cervix will be thrown excessively far backward into the hollow of the sacrum and there may be too much tension to permit of satisfactory union. These points having been selected and held in tissue forceps or marked with scissors, the point C is next selected. This lies in the median line and is the lowest portion of the anterior wall which can be

[1] If an extensive laceration of the cervix has been repaired the selection of these first points should be omitted and the line of excision of the tissues should be carried in a straight line from B to D in order to avoid cutting off the nutrition of the vaginal wall above B.

brought without tension to the junction of the points B, B′ when held together. The point D is then selected. It lies upon the median line and its exact situation is unimportant, but the tissues come together most conveniently when it is about three quarters of an inch anterior to the cervix. These points having been selected and marked, the wall at C is put upon the stretch antero-posteriorly by two tenacula and a very short transverse incision is made between them at C and carried through the whole thickness of the vaginal wall until the plane of cleavage between it and the bladder is found. The handle of the scalpel is then inserted into the plane of cleavage and made to separate the vagina and bladder in the median line to the point D, care being taken that its edge is directed toward the vaginal wall and away from the bladder. The vaginal wall is then divided in the middle line from C to D in order to permit the freer use of the handle of the scalpel or finger. The handle of

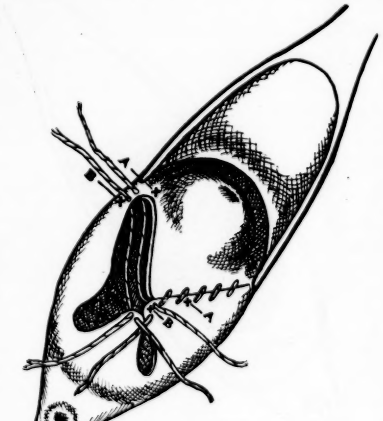


FIG. 4.

the scalpel, or preferably the finger, is then made to separate the vagina and bladder over the whole area marked out for resection and, so far as possible, under the whole triangular flap between D and the cervix; but if any difficulty is found in the latter situation the separation can be postponed until a later stage in the operation. The vaginal wall is then cut with scissors along the lines marked in the first figure, thus removing the whole crescentic area which is included between the six selected points. The point D is then lifted up and the flap above it separated from the bladder over its whole extent. This separation may, however, require the careful use of scissors against the vaginal wall in the median line since the vesico-uterine ligament is, as has been pointed out by Goffe, exceedingly strong and tendinous at this point. The cervix is then seized with double hooks and the bladder is separated from the uterus and broad ligaments with the fingers to, or nearly to, the level of the peritoneum and as widely as possible to the side. This is a very essential step in the operation, permitting as it does the complete replacement of the bladder and a considerable elevation and backward displacement of the cervix, which is in itself a fairly effective remedy against the tendency towards prolapse which is always present, and against the re-formation of the cystocele.

We are now ready for the sutures. The first suture is entered as nearly as possible in the median line about a quarter of an inch below C (Fig. 3) and made to pass deeply through the whole thickness of the anterior wall to emerge at the free edge at C. It is re-entered at the point B where it again passes deeply through all the tissues of the vaginal wall to emerge slightly above B. (It is thus free from the tissues except as it passes through the whole thickness of the vaginal wall at or about the points C and B.) A similar suture connects C with B′ on the opposite side. A third suture passes through all the tissues of the wall at B on the one side to pass freely across the denuded surface without entering the tissues until it re-enters the vaginal wall of the opposite side at B′. These three stay sutures make up the only important and supporting portion of the suture, the remaining portion of the union consisting only of a running whip suture designed first to secure accuracy of apposition of the remainder of the cut edges and, second and more important, to control hemorrhage. Hemorrhage is frequently somewhat abundant during the progress of the operation, but is never dangerous and always ceases with the application of the sutures, since if the bladder has not been wounded the only hemorrhage is from the vaginal vessels in the cut edges. If, however, the muscularis of the bladder is injured at any point in the course of its separation the resulting ooze is easily controlled by a catgut ligature.

In tying the sutures the following procedure is most convenient. The first stay suture is drawn tight but not tied, thus approximating the points C, D, and is so held by an assistant. The point D is then seized by tissue forceps and approximated to B, thus bringing into evidence one of the four divisions of the four-leaf clover (Fig. 4) which will be formed by the tying of the three stay sutures. The tip of this first leaf of the clover is then seized by forceps and its sides are whipped together by a running suture, which passes through the cut edges of the vaginal wall only, but must include the whole thickness of the wall in order to control hemorrhage. This first of the four divisions of the clover having been thus closed, the same thing is done with the upper leaf upon the other side. The three stay sutures are then tied and the two lower leaves of the four-leaf clover are easily whipped together and the operation is completed.

It is well before the last suture is put in to hold the edges of the incision apart and remove any

small clots which may have collected between the vaginal wall and bladder.

This operation may, of course, fail by lack of first intention if good asepsis is not secured. It may result in insufficient support of the cystocele, or, upon the other hand, in over-tight closure of the vagina if the points B, B′ are incorrectly selected; but these dangers are to be avoided by the plastic sense of the operator, and are common to all plastic operations. In my experience it differs from the old operations for cystocele in that what has been once gained is never subsequently lost. I have yet to see a good primary result lost from subsequent stretching, though I think that this, like any cystocele operation, should always be followed by a careful repair of the perineum.

PULSE-PRESSURE ESTIMATION.

BY SHEPHERD IVORY FRANZ, PH.D.,

Psychologist, Government Hospital for the Insane; Professor of Physiology, George Washington University Medical School, Washington, D. C.

The recent article, with the above title, by Dr. J. J. Putnam, in the Journal (March 14, 1907, page 330) appears to me to be a natural reaction and protest against the exclusive use of the more elaborate methods for the estimation of arterial pressures. The instruments that have been recently devised and advocated are not always suitable for clinical purposes, however good they may be for testing certain individuals or in special situations, *e. g.*, in a laboratory or at the bedside in hospitals. To say the least, it is often inconvenient to use these methods in private practice. Moreover, with restless and violent patients the danger to the apparatus makes it undesirable (sometimes expensive) to bring near them instruments constructed of glass, and at times it is impossible to keep such patients quiet long enough to adjust the "cuff" properly. This I have found to be especially true in dealing with the insane.

The personal method used by Dr. Putnam may answer very well with one thoroughly accustomed to estimate pressures, but not many can make estimations that will be sufficiently accurate. For much of the clinical work there seems to be needed a method that will be sufficiently exact, that can be conveniently used, and that does not depend so much upon the personal equation as the method suggested by Dr. Putnam. Instead of making an estimation of the pressure by muscular effort needed to obliterate the pulse I have used for some time a modified form of an instrument (sphygmometer) devised some years ago by Dr. A. Bloch. The use of such an instrument appears to me to meet the requirements of both accuracy and ease. Many physicians to whom I have shown this instrument have been unaware of its invention, and it seems worth while to call the attention of the profession to it by giving a brief description and noting some of its advantages.

The instrument consists of two tubes, one of which (A) fits into the other (B), and which in turn incloses an extension spring (E), (partly shown at about the middle of the accompanying figure after both tubes have been cut away). On



Fig. 1. Diagram of spring sphygmometer. Illustration about one half size of instrument.

the inner tube there are engraved the pressure constants of the spring, both in grams and in centimeters of mercury. The inner tube is prolonged as the shaft (C) and the foot plate (D). The figure shows the instrument with part of the outer tube cut away and part of both tubes cut away to illustrate respectively the location of the inner tube and the extension spring. The user places a finger over an artery, such as the radial, to feel the pulse, the foot plate is then set over the artery central-wards, and pressure is exerted by the instrument on the artery to obliterate the pulse. The pressure required to overcome the combined blood and arterial tension is read from the scale. After this determination has been made the pressure may be gradually reduced, as is done in using the Riva-Rocci or similar type of instrument, and we can determine the pressure at which the first pulse appears.

There are a number of different styles of the instrument. One has three foot plates for different kinds of work. The one illustrated here is sold for 20 francs; others cost as high as 35 francs.[1] The length is 14 cm. (5½ inches). It weighs 35 gm. (over an ounce). It measures pressures from 30 to 250 mm. Only centimeter divisions are marked, but it is easy from these to estimate fifths, so that the instrument can be said to be useful for determinations within 2 mm. of the actual pressures. A determination can be made in ten seconds.

The advantages in the use of such an instrument over the method of finger pressure advocated by Dr. Putnam is the obvious one of an objective measure of the pressure. The advantages of the instrument over the other types of sphygmomanometers may briefly be mentioned.

The chief advantage is that it can be used at times when other instruments cannot be used. It is as easy to use it with restless or excited patients as it is to count their pulse rate. One of the great objections to the use of sphygmomanometers is that they can be used only on the arm or leg. This instrument can be employed to estimate the pressure in any superficial artery. At times the pulse in the radial or the brachial cannot be felt easily, but a good measure may be made of the pressure in the carotid.

It is so small that it can be carried in the pocket just as a thermometer is carried. In fact, it is not much larger than the ordinary clinical thermometer.

There is no rubber to rot, no leaks to be repaired and no glass to be broken. Within the limits of the instrument the spring will remain

[1] Made by C. Verdin, of Paris.

accurate for years with care, and often without any special care. If it does after a long time become inaccurate, it is a very simple matter to calibrate the spring by holding the instrument vertical with the plate upwards, placing weights on the plate, and noting the amount of distention. The instrument I am now using has been employed for about six or eight years and the spring has not yet become weaker to any appreciable extent.

In neurological work, for the determination of pain sensations, the instrument can be used by unscrewing the foot plate, thus giving a small area for stimulation. As an algometer it is placed on a part of the body, pressure exerted, and a record taken when the pressure just causes pain. The small area of the end when the foot plate is unscrewed makes it possible to use the small amounts of pressures that are possible with this instrument.

The advantages of the instrument may be summarized as follows: it is convenient, sufficiently accurate, inexpensive both in first cost and in necessary repairs, it does not get out of order easily, is not easily broken, and can be used in situations when the more elaborate and more expensive instruments cannot be used.

It is said that every science advances only by refinement of methods and measurements. The history of medicine shows that this statement is especially applicable in dealing with the sick. New methods and the refinement of old ones are needed if we are to diagnose and treat diseased conditions better than those that have preceded us. Blood pressure determinations are now admitted to be a valuable aid in diagnosis, but the current methods of making these with any of the sphygmomanometers on the market are too inconvenient for the general practitioner, however good they may be for office or hospital use. The use of the finger for estimating the pressure is too inexact for any but the most expert. With the instrument described above it is possible to obtain the accuracy needed in any case, and it requires little practice to make one an expert.

Medical Progress.

PROGRESS IN PATHOLOGY.

A CRITICAL REVIEW OF VARIOUS METHODS EMPLOYED FOR ISOLATING TYPHOID BACILLI FROM STOOLS.

BY JOSEPH H. PRATT, M.D., BOSTON.

(Continued from No. 23, p. 748.)

(*k*) *v. Drigalski-Conradi's litmus lactose agar.*

THESE investigators sought to separate typhoid and colon bacilli by means of their different actions on sugars. They did not wish to check in any way the growth of B. typhosus; on the other hand they aimed to provide the most favorable conditions for its growth. The method that bears their name differs from the litmus lactose agar of Wurtz in two important particulars: first, all the colonies are surface colonies; second, the crystal violet in the medium checks the development of a large number of fecal bacteria. In the strength used it does not interfere with the growth of the typhoid bacillus. Uffelmann [145] had previously made use of crystal violet, but he used a solution in his culture medium 2½ times as strong as Wurtz's solution. (Loeffler.[89]) The addition of nutrose caused the typhoid colonies to assume a deeper blue color and favored their growth.

Technique.— (*a*) To 1,500 gm. of chopped beef add 2 liters of water and allow it to stand until the next day. Boil the beef infusion one hour; filter; strain through a cloth; add 20 gm. of Witte's peptone, 20 gm. of nutrose, 10 gm. of sodium chloride. Boil one hour, then add 60 gm. of the best agar; boil three hours (or one hour in the autoclave), make weakly alkaline to litmus; filter; boil one-half hour.

(*b*) Litmus solution made according to the formula of Kubel and Tiemann, 260 cc.; boil ten minutes then add chemically pure lactose 30 gm. and boil together fifteen minutes.

(*c*) The hot lactose litmus solution is added to the fluid nutrient agar. Shake well, restore the weak alkaline reaction if it has been lost. The addition is now made of 4 cc. of a hot sterile solution of 10% anhydrous sodium carbonate and 20 cc. of crystal violet prepared by taking 100 cc. of warm sterile water and adding 0.1 gm. of crystal violet (B. Höchst). Prepare Petri plates with a portion of the medium and place the remainder in small flasks, about 200 cc. to a flask.

When examining stools several series of plates should be made in order to bring the largest possible number of germs beside one another upon the plates. Firm formed stools should be rubbed up with a little normal salt solution and the plates inoculated from the suspension thus prepared. The Petri dishes into which the fluid medium is poured should measure 15 to 20 cm. in diameter and have a height of 1 to 2 cm. About 20 to 25 cc. of the medium should be poured into each dish. The agar layer should never be less than 2 mm. in thickness. The dishes should stand open for at least an hour until the water has evaporated and the agar is dry and hard. For the first plate of the series which, owing to the large number of colonies is useful only for dilution, an ordinary Petri dish may be used. A glass spatula is used for making the surface inoculation. This is made by taking a glass rod 5 mm. thick and about 15 cm. long and bending it at right angles 5 or 6 cm. from one end making it L shaped, then the tip of the horizontal part is rounded in a Bunsen flame and turned upward. The horizontal arm is placed in contact with the infected material and then rubbed over the surface of the plates one after the other. By this method it is possible to secure discrete surface colonies. After inoculation the plates should remain uncovered for at least an hour, in every case until all the water of condensation has evaporated from the surface leaving it perfectly dry. The presence of crystal violet in the medium will prevent contamination of the culture with air bacteria. The plates are then

placed in the incubator which should be kept at 37° C. After twenty to twenty-four hours colon bacilli form opaque red colonies 2 to 6 mm. or more in diameter. The typhoid colonies have a diameter of 1 to 3 mm. and their color is blue and their appearance resembles drops of dew.

v. Drigalski and Conradi[28] tested this procedure in 50 typhoid cases in different stages of the disease and in all cases demonstrated the typhoid bacillus in the stools. Bassenge,[6] in a paper published in 1903, stated that the source of the litmus tincture was most important. In Koch's Institute good results were obtained only with the litmus prepared by C. A. F. Kahlbaum, of Berlin. Months are devoted to the preparation of the litmus stock. Media made from other litmus does not show the finer differences of color. Kahlbaum's litmus tincture is prepared according to the formula of Kubel and Tiemann. It can now be obtained in this country from importers of chemical and bacteriological supplies. The method of preparing Kubel and Tiemann's litmus tincture is not described in bacteriological works. Dr. Charles Harrington informs me that it is an old method formerly used in hygienic laboratories. The formula for its preparation will be found in Kubel and Tiemann's book on analytical methods. Marschall[95] objects to v. Drigalski and Conradi's medium owing to the difficulty of preparing litmus tincture by the method of Kubel and Tiemann. With the litmus tincture bought in the shops the results were unsatisfactory as the fine nuances of color could not be obtained. Apparently he did not use Kahlbaum's litmus. [For three years I have used Kahlbaum's litmus tincture (nach Kubel-Tiemann) and have not had any difficulty in the preparation of a medium that permitted of sharp color differentiation of typhoid and colon colonies. J. H. P.]

Eyre[34] from personal investigations in the laboratory of the Institute for Infectious Diseases in Berlin found that the v. Drigalski-Conradi medium as prepared there was distinctly variable in composition, reaction, color and the appearance of the colonies growing upon it. He tested several lots of media in Berlin and found the reaction varied from 0.5% to 1.5% acid. Eyre introduced several modifications which made the preparation of the medium still more complicated. Owing to traces of glucose in meat infusion he used as a substitute ox or sheep serum. The medium was made 1.5% acid to phenolphthalein by the addition of a normal solution of lactic acid.

v. Drigalski and Conradi have made slight modifications in their medium. These will be found in Bassenge's article.[6] See also v. Drigalski.[27] They now use a 3.5%, instead of a 3% agar. The object of this is to make the plates firmer so that their surface will be less liable to be torn by the glass spatula. Horse flesh was substituted for beef in preparing the medium for the sake of economy, and for the same reason tropon is used instead of nutrose. (Bassenge.[6]) The difficulty of filtering a 3.5% agar is obviated by the use of the sand filter devised by Paul.[108] Bassenge[6] cautions against over-heating the lactose. It is well to boil the litmus solution for twenty minutes, then add the lactose and heat only ten minutes on a water bath. v. Drigalski and Conradi found that the degree of alkalinity recommended by them was too high. It is better to add 2 cc. instead of 4 cc. of the 10% solution of anhydrous sodium carbonate.

Klinger[74] used a 4% instead of a 3% agar and substituted for the beef infusion 20 gm. of Liebig's extract to 2 liters of water. In spite of the fact that the v. Drigalski-Conradi medium contained 4% of agar, Klinger[74] found that the fermentation of the lactose by some fecal bacteria was so intense that the colonies were surrounded by a wide red zone. If a typhoid colony developed in this red area it could not be distinguished from one of the smaller colon colonies. Klinger[74] noted that the transparent, dew-like appearance of the typhoid colonies was not constant. It was not in his experience rare to find typhoid races that produced in addition to transparent colonies some that were denser and with moist surfaces. In the center of the typhoid colonies were sometimes seen a distinct umbilical depression.

Harris[53] modified the v. Drigalski-Conradi medium by the employment of dextrose-free bouillon, instead of ordinary bouillon. Czaplewski[24] recently suggested that the litmus and lactose solutions be kept on hand in sealed tubes, and then added to melted agar just before the plate cultures are to be made. He found the addition of crystal violet of no advantage. He has practically abandoned the medium of v. Drigalski-Conradi for that of Wurtz.

Many observers have found that the v. Drigalski-Conradi medium permits of satisfactory differentiation of typhoid and colon colonies. (Lipschütz,[68] Clauditz,[20] Dönitz,[30] Krause and Stertz,[70] Petkowitsch,[113] Klinger,[74] Friedel,[38] Herberich,[55] Ruata,[135] Marschall,[95] Nowack,[103] C. Cole.[22]) Klinger[74] showed that more colonies sometimes develop on the v. Drigalski-Conradi medium than on ordinary agar, owing probably to the greater amount of nutrient material in it.

(l) *Endo's fuchsine medium.*

Endo[31] devised a method of demonstrating typhoid bacilli in the feces that is less complicated than that of v. Drigalski and Conradi and he claimed that it gave equally good results. The essential ingredients of the medium are lactose, fuchsine and sodium sulphite. The colon colonies are red while the typhoid are white. The medium is prepared as follows: to 500 gm. of finely chopped beef 1,000 cc. of water, 10 gm. of peptone, 5 gm. of sodium chloride and 30 gm. of agar are added. After boiling well, filter, neutralize, and then add 10 cc. of a 10% sodium carbonate solution in order to make it alkaline. Add 10 gm. of pure lactose, and 5 cc. of alcoholic fuchsine solution. The medium will now be red. Pour in 25 cc. of a freshly prepared 10% sodium sulphite solution. Do not let the agar solidify until the medium becomes entirely decolorized. The medium must be kept in the dark. It is

used in Petri dishes. After they have been filled, allow them to stand in a room free from dust for about fifteen minutes before the covers are replaced. The plates are inoculated with a v. Drigalski-Conradi spatula. With Endo's medium some investigators have had better results than with the v. Drigalski-Conradi (Klinger,[74] Marschall,[95] Petkowitsch,[113] Scheller,[136] T. Müller,[100]) while others have had poorer results (Clauditz,[20] Herberich,[53] Ruata [135]). Petkowitsch [113] states that the paratyphoid bacilli as well as the colon bacilli form red colonies on Endo's fuchsine agar. He advises the use of both the Endo and v. Drigalski-Conradi media. Klinger [74] prepared the fuchsine solution by allowing 10 gm. of crystallized fuchsine to stand twenty hours in 100 cc. of 96% alcohol. If the alcohol acts for a shorter time the medium will contain too little color; if for a longer time the result is unsatisfactory. Upon the Endo plates the development of weak typhoid bacilli is checked, sometimes only half as many colonies develop as on the v. Drigalski-Conradi plates. This defect of the medium is partly compensated by the simultaneous inhibition of other fecal bacteria. Klinger [74] in his examination of typhoid stools isolated B. typhosus by Endo's fuchsine plates 68 times in febrile cases, while the v. Drigalski plates were positive only 46 times. Marschall [95] also found that the development of micrococci and other contaminating micro-organisms was less on the Endo than on the v. Drigalski-Conradi medium. Scheller [136] states that on Endo's agar a single typhoid colony can be recognized on a plate covered with colon colonies.

Marschall [95] insists on the importance of using sodium sulphite crystals that have undergone no disintegration in preparing the medium. Klinger [74] found that a solution ten hours old was worthless owing to the quick decomposition of the salt in the presence of water. Marschall [59] attributes the unfavorable results obtained by Ruata [135] to the fact that he used too large a quantity of sodium sulphite and in other essentials failed to carry out Endo's directions. If the Endo medium has a slightly reddish color it is of no disadvantage, as then the typhoid colonies are, if anything, more readily distinguished than on colorless plates.

IV. ENRICHMENT METHODS DEVISED TO FAVOR THE GROWTH OF TYPHOID BACILLI AND TO INHIBIT THE GROWTH OF COLON.

(a) *Roth's bouillon.*

Roth,[130] at the suggestion of Rubner, studied the influence of alkaloids on bacteria. He found in caffeine (trimethylxanthine) a substance that in 1% solution checked the development of B. coli but did not interfere with the growth of the typhoid bacillus. Numerous investigations showed, however, that the growth of bacteria not belonging to the colon group was not sufficiently inhibited to make Roth's caffeine method of practical value. Ficker and Hoffmann,[36] to prevent the growth of other bacteria, added crystal violet to caffeine bouillon. They also tested a large number of caffeine derivatives with the hope that something might be found that would act even better than caffeine in differentiating typhoid and colon bacilli. But of all the substances examined, caffeine alone had this selective action.

(b) *Ficker and Hoffmann's method.*

Stock solution.— Place 1 kg. of chopped beef in an enameled boiler with 2 liters of distilled water; weigh the boiler; heat to 50–55° C. for thirty minutes; then stir with a glass rod while raising the temperature to the boiling point; boil thirty minutes; weigh; add water lost by evaporation; filter through gauze; measure; add 6% peptone (Witte) and 0.5% sodium chloride; heat until peptone is dissolved; filter; place in Erlenmeyer flasks; steam two hours.

Enriching solution.— One hundred cc. stock solution is measured in a sterile graduate, then placed in a sterile Erlenmeyer flask; normal NaOH is added until the solution is 2.7% acid to phenolphthalein and steam ten minutes; cool; add 105 cc. of a 1.2% caffeine solution; measure in a sterile graduate, then by means of a sterile pipette add 1.4 cc. of a 0.1% crystal violet solution. The caffeine solution must be sterile. Avoid heating the solution. Both the caffeine and crystal violet should be weighed on delicate chemical balances. Crystal violet should be dissolved in cold sterile distilled water.

Inoculation of feces.— If the stool is of thin fluid consistence it should be allowed to stand a few minutes in a test tube; from the surface 8 or 9 cc. should be taken and added to the enriching solution. If the stool is semi-fluid it should be rubbed up with one part of a 1.2% caffeine solution and filtered through sterile cotton. If the stool is formed a portion should be taken and rubbed up with 2 parts of caffeine solution. Inoculate 6 or 7 v. Drigalski-Conradi agar plates; 3 of the plates are inoculated with varying amounts of the enriching solution; if the growth has not been abundant, from 0.1 of a cc. to 0.35 cc. are used. If there has been rich growth, 0.1 to 0.2 of a cubic centimeter. The other plates are inoculated from the primary plates.

The enriching solution is preserved in an ice chest; if the plates give a negative result biological precipitation is produced by the addition of agglutinating serum. The v. Drigalski plates are inoculated from the sediment.

Ficker and Hoffmann [36] performed a series of experiments in which a definite number of typhoid bacilli were added to a known number of fecal bacteria. They isolated by their method typhoid bacilli from one mixture containing 1 typhoid bacillus to 40,000 fecal bacteria, and from another in which the ratio was 1 to 53,000. In no case could typhoid bacilli be recovered by the v. Drigalski-Conradi method if there were more than 310 fecal bacteria to 1 typhoid bacillus.

Ficker and Hoffmann [36] examined 11 typhoid stools from patients in the second and third weeks of the disease and in all a positive result was obtained.

Klinger [74] in his bacteriological study of typhoid stools isolated B. typhosus in a larger percentage of cases examined by the caffeine enriching method than by either the litmus or fuchsine method.

v. Jaksch and Rau [64] state that they isolated virulent typhoid bacilli by the Ficker-Hoffmann [36] method three times from the drinking water of Prague.

Reischauer [122] by this method was able to isolate typhoid bacilli from fecal mixtures which contained 1 typhoid bacillus to 34,000 fecal bacteria. He maintains that the value of the method depends chiefly on the check it exerts on the development of colon bacilli. Both Reischauer [122] and Friedel [38] hold that a true Anreicherung of B. typhosus does not occur in the caffeine medium. Friedel [38] rejected the medium as impractical, owing to the demands it made on the time of the laboratory workers. Klinger [74] raised the same objection. In Kloumann's [75] hands the method failed. He obtained better results with v. Drigalski-Conradi plates. In tests made by Herberich [55] the number of typhoid bacilli actually diminished in the caffeine solution. Klinger [74] said that negative results were often due to the fact that caffeine failed to prevent the overgrowth of some fecal bacteria. Reischauer's [122] experience led him to the same conclusion. Courmont and Lacomme [23] examined the stools from 8 typhoid patients. Neither typhoid nor colon bacilli grew in the caffeine medium. They found that 4 out of 11 typhoid races were more sensitive than B. coli to the inhibitory action of caffeine. Rietsch [123] showed that the strength of caffeine solution that could be tolerated by 22 strains of typhoid was variable, and growth was not infrequently arrested by a small percentage of caffeine. Birt [9] studied 31 typhoid strains and found that 26 of these would not grow in the caffeine medium. He examined the dejecta of 5 typhoid patients but was unable to isolate B. typhosus in a single instance. Eyre [33] used Roth's caffeine bouillon with negative result.

Ficker and Hoffmann,[36] as well as Kloumann,[75] found that B. paratyphosus was even more sensitive to the action of caffeine than B. coli: hence the caffeine method is not applicable to paratyphoid diagnosis.

(c) *Reischauer's agar.*

Reischauer [122] prepared a medium composed of ordinary agar to which 3% of caffeine and 1 : 100000 crystal violet were added. He made tests with mixtures of typhoid bacilli and fecal bacteria and found that with the caffeine agar the growth of B. typhosus was slightly less inhibited than with malachite green agar. When there was only 1 typhoid bacillus to 7,000 fecal bacteria positive results were obtained both with malachite green and caffeine agar. When the number of typhoid bacilli was reduced to 1 : 10,500 the typhoid bacillus could not be recovered by either method. In order to avoid contamination with air bacteria, Reischauer [122] used Koch's old method of making plate cultures.

In the description given by Reischauer [122] for preparing caffeine agar Lentz and Tietz [83] think "3% of caffeine" must be a typographical error, and that it should read 0.3%. They found that when agar contained 0.4% of caffeine the growth of B. typhosus was scanty; with higher concentrations of caffeine it did not grow at all.

(d) *Loeffler's media.*

Loeffler [87] realized that something more than the development of typhoid colonies with definite characteristics was necessary in an ideal medium. The formation of distinctive colonies is not the only requirement. The ideal medium must favor the growth of the typhoid bacillus while it inhibits the growth of all other micro-organisms. If the typhoid bacillus was present in small number, in material rich in bacteria, there would be little chance of finding this micro-organism if one depended simply upon the difference in appearance of typhoid colonies from those of other bacteria. He pointed out that even upon a large plate not more than 600 isolated colonies are able to grow. Hence the method of v. Drigalski-Conradi and all others based upon the distinctive appearance of the typhoid colonies are only of value when there is more than 1 typhoid bacillus to 600 other micro-organisms in the material to be examined. Ficker and Hoffmann [36] and Jorns [66] were unable to isolate the typhoid bacillus on v. Drigalski-Conradi plates when the ratio of typhoid to fecal bacteria was less than 1:300.

In the course of a systematic study carried out in the Hygienic Institute at Greifswald by Loeffler's students the discovery was made in 1903 that malachite green possessed the remarkable property of checking the development of colon bacilli while it did not interfere with the growth of typhoid bacilli, at least this was the claim.* Loeffler prepared a variety of liquid and solid malachite green media. He maintains that upon a malachite green agar the typhoid bacillus grows in a characteristic manner. In a second paper Loeffler [89] states that the particular preparation of malachite green he employed was malachite green 120, which he obtained from the Höchst dye works. The medium he recommends most highly is a peptone-nutrose gelatin which contains 13% of gelatin. The experiments with media containing a low percentage of gelatin such as Piorkowski [117] and Rosenthal [129] employed were unsuccessful because then the malachite green interfered with the growth of the typhoid bacillus. In order to check the development of some saphrophytic intestinal bacteria that develop in the presence of malachite green, particularly Bacillus fecalis alkaligenes, he adds 3 cc. of a double normal phosphoric acid solution to every

* In my study of the literature I find that the first investigator to use malachite green for the purpose of differentiating B. typhosus and B. coli was Marpmann in 1894. He was seeking for a substance that would give to typhoid and colon colonies distinctive colors. He overlooked entirely the selective action of the dye on B. coli. This was due to the fact that he decolorized the malachite green with sodium sulphite. The acid malachite green was thereby changed into its leuco-base, and this, as Lentz and Tietz [83] and Peabody and Pratt [109] have shown, has no inhibitory power over the growth of bacteria.

100 cc. of the gelatin. Malachite green is added in the proportion of 1 part of the dye to 2,500 parts of the media. Tubes of fluid gelatin are each inoculated with a drop of a fecal suspension and placed in a thermostat at 37° C. After eighteen to twenty-four hours other gelatin tubes are inoculated from these and poured into Petri dishes. These are kept at a temperature of 25° C. After twenty-four hours the typhoid colonies are easily recognized. They appear as strongly refractive, granular colonies, each about the size of a pin-head. After thirty-six to forty-eight hours they have a grayish yellow color with characteristic projections. A number of bacteriologists have tested Loeffler's methods during the past year and have all been unable to confirm his findings. (Kiralyfi,[70] Doebert,[25] Neumann,[101] Peabody and Pratt.[100]) None of these observers have seen the typhoid colonies assume the characteristic forms described by Loeffler. Neumann [101] thought there must be an error in regard to the addition of double normal phosphoric acid.*

He wrote Loeffler, who replied that 5.6 cc. of the official (25%) phosphoric acid should be used. But the medium with this modification was no more satisfactory. Loeffler [99] stated at the last meeting of the *Vereinigung für Mikro-biologie* that he now uses a chemically pure malachite green that he obtained from the Höchst dye works. It is "*Malachitgrünkrystalle-Chlorzinkdoppelsalz.*" He adds 3 cc. of a 0.2% solution of this to 100 cc. of gelatin. The amount of phosphoric acid required with this strength of malachite green varies between 0.05% and 0.09%.

(*e*) *Lentz and Tietz's method.*

Lentz and Tietz [82] the same year (1903) reported their success with malachite green media in isolating B. typhosus from the stools. v. Drigalski-Conradi litmus agar was inoculated with the growth on malachite green agar plates. They demonstrated typhoid bacilli by this enriching method eight times when the v. Drigalski-Conradi method was negative. They used malachite green 1 in a dilution of 1:6000 added to a 2% agar. Klinger [74] tried the malachite green method of Lentz and Tietz, and obtained better results than with any other method. Comparative examinations were made in a series of 43 typhoid stools. The typhoid bacillus was demonstrated with the v. Drigalski-Conradi agar 13 times; Endo's fuchsine agar 16 times; Ficker and Hoffmann's caffeine method 20 times; Lentz and Tietz's malachite green method 26 times. Klinger's malachite green agar differed somewhat from that recommended by Lentz and Tietz.[82] He used a 4% agar and malachite green 120 in a dilution of 1 : 2000. He found that the reaction of his malachite green agar had to be 2% acid in order to check the development of the colon bacilli and at the same time allow the typhoid to grow. He drew attention to the fact that different typhoid races have different powers of growth on malachite green. A typhoid bacillus recently isolated grew upon 0.1 malachite green (1:1000) while the stock typhoid did not. A typhoid bacillus isolated three months before from the feces was able to grow on only 0.05% malachite green. Even this small amount of malachite green did not permit all the colonies even of the sturdiest typhoid races to develop.

In their original article Lentz and Tietz [82] directed that after the green plate had been flooded with normal salt solution, the surface growth should be rubbed up with the glass spatula. Jorns [66] pointed out that this procedure broke up the colon and proteus colonies. Now Lentz and Tietz [83] advise that, instead of using the spatula, the plate should be inclined from side to side a number of times. The typhoid and paratyphoid colonies are more readily detached than the colon colonies. Formerly, they used a medium neutral to litmus; now they recommend a slightly acid reaction. By this change in reaction the growth of the alkali-forming bacteria is diminished. The reaction point selected corresponded closely to 1.8% acid to phenolphthalein. They pointed out that malachite green 120 contains dextrin and that the dextrin is readily decomposed forming an acid, probably lactic acid. They asserted that the hygroscopic properties of malachite green caused the dye to lose strength rapidly. For these reasons they used malachite green 1 instead of malachite green 120. The concentration employed was 1:5000. Practically identical results were obtained with malachite green crystals (Höchst) in a concentration of 1,22,000. Leuchs,[85] the following year (1906), advised the use of malachite green crystals because they are pure preparations, while malachite green 1 as well as malachite green 120 contains dextrin.

The modified technique of Lentz and Tietz [83] is as follows: a 3% agar is made from a beef infusion (1,500 gm. of meat and 2 liters of water). The agar is boiled for three hours and then 1% peptone, 0.5% sodium chloride and 1% nutrose (this may be omitted) are added. To a portion of the stool to be examined a small amount of 0.85% sodium chloride solution is added and a thin mass prepared. Two large drops of this suspension are placed on a green Petri dish and spread over the surface with a v. Drigalski-Conradi spatula. Then the spatula is immediately rubbed over the surface of 2 large v. Drigalski-Conradi plates (20 cm. in diameter). After sixteen to twenty hours' growth in the thermostat the blue plates are examined. If the blue plates are negative the green plates after twenty-four hours' growth are each flooded with 8 to 10 cc. of 0.85% salt solution. After this fluid has been in contact with the surface growth about two minutes the plate is tipped to and fro so that the fluid rises close to the rim. After the large colon colonies have settled to the bottom — and this occurs in less than thirty seconds — 1 to 3 loopfuls taken from the surface are smeared over a v. Drigalski-Conradi plate and from this first plate a second is inoculated.

* The preparation of a double normal phosphoric acid solution is not easy and requires the facilities of a chemical laboratory and the services of a chemist.

In some instances Lentz and Tietz [83] found the increase in the number of typhoid bacilli was enormous. In one case a series of 8 v. Drigalski-Conradi plates showed a single typhoid colony among about 24,000 colonies of fecal bacteria. The second series of blue plates, made after the enrichment produced by growth on the malachite green agar, showed 350 typhoid colonies to a single colony of a fecal bacterium. This was an increase of four and a half million.

They admit that alkali-formers present in the feces sometimes grow so profusely on the green plates as to render the method valueless. In the examination of 6 out of 51 typhoid stools the second series of blue plates showed either fewer typhoid colonies than the first series, or none at all. With paratyphoid stools there was always an increase. Lentz and Tietz [83] examined during one year at the Bacteriological Institute in Idar 2,737 stools. In 540 of these typhoid bacilli were found, in 144 paratyphoid bacilli. The paratyphoid bacilli were found in the stools of all the 44 cases of paratyphoid fever examined. In 25 of the 44 cases the diagnosis could be made solely by means of their malachite green method.

Klinger [74] and Symanski [143] have reported favorable results with the procedure of Lentz and Tietz. Friedel [38] found it of value in paratyphoid infections but did not succeed in isolating the typhoid bacillus. In tests made by Bonhoff,[11] B. coli grew in malachite green media that inhibited the growth of B. typhosus. In a concentration that checked both colon and typhoid bacilli both types of paratyphoid bacilli developed profuse growths.

(To be continued.)

Reports of Societies.

THE AMERICAN SURGICAL ASSOCIATION.

REPORT OF MEETING HELD AT WASHINGTON, D. C., MAY 7, 8 AND 9, 1907.

(Continued from No. 23, p. 751.)

DR. WILLY MEYER, of New York, in his contribution to the symposium on

END RESULTS FOLLOWING OPERATIONS FOR CARCINOMA OF THE BREAST

presented his personal statistics covering 84 cases (86 operations) with carcinoma of the breast, operated upon by his radical method [2] between September, 1894, and April, 1907.

All his cases, with the exception of one, were females; the youngest was twenty-eight, the oldest seventy-two years of age. The greatest number occurred in the fifth decade of life.

His figures show that 28, or 35%, of the 80 patients traced are alive and well to-day, 9 having been operated upon within the last three years. Four others died from six to eight years after operation, when 2 died of recurrence; the other two of diseases not connected with the original trouble. Five lived from three to five years after operation. Three, though living, show signs of recurrence. Forty to 50% died within three years after operation.

[2] N. Y. Med. Rec., Dec. 15, 1894; Jour. A. M. A., July 20, 1905.

Dr. Meyer calls attention to the fact that eight of his fatal cases died of metastases in the absence of either local or regional recurrence.

Regarding the wisdom of invariably cleaning out the supraclavicular space at the time of operation, he states that his own experience has pointed rather against such a procedure. It was done in none of his cases that remained well from five to twelve and one-half years after operation.

Concerning the preservation of the subscapular nerves, as advocated by Küster in 1887, he states that he himself always tries to do so; still, he has in three instances seen a recurrence take place around the second subscapular nerve. In spite of this observation he would, of course, not consider the removal of these nerves warranted, in view of the resulting disability with regard to the proper use of the arm.

Dr. Meyer emphasized the fact that every one of his patients has the perfect use of her arm. Only one of his living patients has a somewhat pronounced edema of the arm. The post-operative neuralgia or neuritis of the brachial plexus has proved to be transitory in every instance.

As to prognosis, he considers the cases with involvement of the supraclavicular glands to offer little hope of permanent cure. Nevertheless, he believes it imperative, even in these cases, to extirpate whatever can be reached with the knife, so long as metastases do not forbid such a procedure.

So far as he has been able to determine from the partially, somewhat incomplete pathological records of the cases reported, the prognosis is less favorable in the case of adenocarcinoma than of scirrhus.

Dr. Meyer expresses the opinion that it is often more the degree of malignancy of the disease than its duration prior to operation that determines the final result. He has seen several cases in which, despite most timely and thorough operation, internal metastases occurred with astonishing rapidity.

But, just because of the known treacherous, perhaps even infectious, nature of malignant disease, he thinks it would be wrong, even in view of the apparent hopelessness of such cases, to encroach upon the magnitude of the operation. It is because of the uncertainty as regards the virulency of the disease in the given case that radical work becomes a necessity in every instance, and this, he thinks, is best accomplished by an operation such as he practices, consisting in the removal of both pectoral muscles, with the diseased breast, glands and surrounding fat in one mass.

DR. LEWIS S. PILCHER, of Brooklyn, presented a contribution to the symposium on

END RESULTS FOLLOWING OPERATIONS FOR CARCINOMA OF THE BREAST.

His paper dealt particularly with 18 cases in which the evident extension of the disease at the time they first presented themselves was great enough to arouse suspicion of possible infection of the lymph nodes above the clavicle. In 4 cases glandular masses in the neck were distinctly palpable; of the 14 in which the examining finger could not appreciate the presence of diseased nodes in the neck, section revealed infected nodes present in 11; and in only 3 cases appreciable disease was not recognizable upon section. Of these last mentioned 3 cases all have remained well from the time of operation, a period of five, one and one-half and one year respectively.

Of the four cases in which the supraclavicular glands were palpable before operation, one case died three months after operation, evidently from internal metas-

tasis. The second case had two periods of recurrence and died five years after the primary operation. The third case died two years after operation, it is thought from a carcinomatous element in the pulmonary condition, she having been said to have died from pneumonia. The fourth is now, two years after operation, perfectly well without any evidence of recurrence.

In each of the foregoing cases the supraclavicular spaces were cleared out and the typical operation performed upon the thorax and axilla.

Of the eleven remaining cases one died from myocarditis seven weeks after operation; three developed speedily both regional and distant metastases, all dying within a year; a fourth was re-operated upon for a recurrent nodule in the lateral thoracic region a year after the primary operation; she died three years after primary operation from carcinoma of the liver. A fifth case remained well for five years, but has now developed both supraclavicular and thoracic recurrences. Four cases remain free from recurrence after periods of three, three, two and one year, respectively.

Abstract,

END RESULTS IN OPERATIONS FOR CARCINOMA OF THE BREAST.

DR. ALBERT VANDER VEER, Albany, N. Y.

Dr. Vander Vere said he had intended including the histories of cases he had operated upon during the past twenty-five years, but time only permitted of those from May, 1899, to May, 1906, the period of occupancy of the Albany Hospital.

There were 103 cases from which to draw conclusions, the relative proportion in different decades being as follows:

20 to 30 years of age,	1 case
30 „ 40 „ „ „	15 cases
40 „ 50 „ „ „	35 „
50 „ 60 „ „ „	32 „
60 „ 70 „ „ „	16 „
70 „ 80 „ „ „	4 „
	103 cases

Family history negative,	53 cases
„ „ tubercular,	25 „
„ „ carcinomatous,	18 „
„ „ „ and tubercular,	5 „
„ „ not stated,	2 „
	103 cases

Left side,	60 cases
Right side,	41 „
Both sides,	2 „
	103 cases

Later, DR. VANDER VEER intends giving statistics of all his work in this field of surgery. The operation forty years ago and now is another striking illustration of the advance in surgery. It is more and more scientific, more and more thorough, as our knowledge of pathology has increased and our association with laboratories where careful examination of specimens and original investigation can be made. Forty years ago few surgeons entered the axillary region and thoroughly removed its contents. Step by step the thoroughness of the operation has been increased until, if cases were classified in periods of a half decade, it would show a marked improvement in end results and permanent recoveries.

We should emphasize most earnestly the importance of impressing upon the profession at large an early diagnosis, the physician and surgeon in consultation studying the case carefully, and employing such excellent methods as have been suggested by Dr. Warren and others. If the case be non-malignant give the patient the benefit of mental relief from the fear of cancer she has entertained. If the concensus of opinion is in the direction of malignancy she, or her friends, should know it, and the experience of many candid surgeons and careful pathologists is that in these cases the earlier a thorough and complete operation is done, the better for our patients and for statistics as to complete relief. To know her tumor has been removed, that she has made a good recovery, with all the chances in her favor, is a prognosis of no mean importance. She can forget her condition when only a gradually disappearing scar remains. Dr. Vander Veer prefers the incision beginning well up in the axilla, almost on an oblique line to a point below the nipple, thence along the under surface of the breast to the median line, with a corresponding elliptical incision above, traversing the upper segment of breast area, joining with the incision just underneath the outer edge of the pectoralis major, enabling the operator to reach the breast and lymphatic spaces quite satisfactorily, even to removal of the pectoral muscle. This also affords good drainage. Plastic work for covering areas where large amounts of diseased tissue have been removed is thoroughly serviceable, and the doctor is favorably impressed with the small percentage of return in the scar, metastases to internal organs being the principal factor causing death.

Careful laboratory examination tends decidedly to indorse the value of the work of the pathologist in diagnosis, and there is no greater field for the philanthropist than the endowment of pathological laboratories for investigation along these lines.

Although operations in hopeless or unfavorable cases bring little credit to the surgeon, yet they relieve the patient of much mental and physical suffering. Very little good has resulted from x-ray treatment, except relief from pain, and in many cases it seemingly prolongs life.

Could such men as Parker, March, the elder Gross, the senior Warren and others look in upon an operation for carcinoma of the breast they would be as much surprised as at the advances made in abdominal surgery at the present time.

Where cases are reached early it is not yet convincing that removal of the pectoral muscle is called for, but the younger men would be impressed with the necessity of careful examination and dissection of the axillary spaces.

There were a few cases noted where tumor appeared early, did not worry the patient, yet later developed into carcinoma. We cannot but feel that had the original simple adenoma been looked after in a judicious manner the patient might have escaped the carcinomatous element.

Some patients are unconcerned in reference to growths about the mammary gland, while others are greatly alarmed at the slightest disturbance, the latter often unwilling, even amidst their fears, to have surgical intervention, yet a class we should always endeavor to reach early.

DR. VANDER VEER cited some interesting cases of return of the disease very late after the first operation, one occurring twelve years after the first surgical intervention.

The shortest period of recurrence was three months.

The element of pain is not always so marked until the tumor begins to increase actively.

Careful study of statistics impresses one with the knowledge that where operation is done before involvement of the axillary region a better percentage of recoveries follows.

DR. VANDER VEER presented two cases of metastasis to the long bones, one three years after amputation

of right breast, patient finally dying about four weeks later from all the evidence of carcinoma of pleura, possibly of lung, on left side.

Many cases presented with well-defined carcinoma of breast, also uterine fibroids. In operations for both conditions patients have usually done well, but there is a greater degree of anxiety for the surgeon. Where only the breast was removed patients seemed to live comfortably for many years, with no apparent disturbance from the uterine fibroid. Patients do best who have passed the menopause.

The element of traumatism has ever commanded careful thought. Is it a factor? We must heed carefully the history of such cases as Dr. Vander Veer presented.

In exceedingly fleshy patients it is interesting to note the difficulty that sometimes presents in reaching an early diagnosis, yet these cases are usually very susceptible to the least disturbance about the glands, and pain, however slight, attracts their attention at once. A clinical diagnosis is not always so easy.

It is very instructive to note how short a time sometimes elapses in the period that a tumor is apparently developing. As an illustration a case presented where tumor had only been noticed three months in left breast. At the time of operation the growth was ulcerated, rectangular in shape, measured 17 by 12 cm., seemed movable, had a very offensive odor and glands of axilla involved. Patient made an excellent recovery from operation. Pathological report: very cellular medullary carcinoma.

Several very impressive cases with a tubercular history were given, one in particular where operation was first done Dec. 31, 1903, metastases in scar, and operation Oct. 28, 1904, and patient still living, although gradually growing weaker, and immense swelling of right arm, which gives her much pain.

This case has shown a degree of malignancy, yet a power of resistance remarkable to observe.

Dr. A. J. Ochsner, Chicago, contributed a paper on the

FINAL RESULTS IN 164 CASES OF CARCINOMA OF THE BREAST OPERATED DURING THE PAST FOURTEEN YEARS AT THE AUGUSTANA HOSPITAL, CHICAGO.

Of these cases 101 have been traced to the present time. Fifty-seven of these cases are still living, all but two without recurrence. Thirty-nine of these cases have lived more than three years; 25 cases more than 5 years; 5 cases more than ten years; 5 cases died from shock; 20 cases died with one year; 6 cases within two years; 6 within three years; 1 within four years; 2 within five years and 1 case each, six, seven, eleven and fourteen years after the primary operation. Five cases died free from recurrence. Two of these lived for three years, and 1 each for seven, nine and ten years.

During the past six years all patients have received post-operative x-ray treatment while in the hospital, and 22 cases continued this treatment after returning to their homes. Several cases were apparently benefited by this treatment.

Dr. August F. Jonas, of Omaha, Neb., read before the American Surgical Association a paper entitled

THE END RESULTS IN OPERATIONS FOR CANCER OF THE BREAST,

the same being one of the contributions to a symposium on this subject.

He stated that it has been shown that from 80% to 86% of all breast tumors are carcinomata, and that this is his personal experience.

The total number of neoplasms of the female breast that have come under the author's observation and which were operated upon during twenty years, and of which it has been possible to obtain more or less complete data, comprises a list of 260 cases. Of these 260 cases 211 were carcinomatous. He divides these according to microscopical findings as follows: Acinous carcinoma, 105; tubular carcinoma, 75; scirrhus carcinoma, 25; colloid carcinoma, 6.

The tubular carcinoma is the most frequent; in this form cell degeneration is slower and takes place much later than in the acinous form.

In all the cases referred to the author did a radical operation — complete removal of the entire breast and axillary contents in the very early cases, and in the later ones removal in addition of both pectoral muscles and the fat from the supra-clavicular triangle. In a number of instances portions of one or several ribs were removed wherever there was the slightest indication of the neoplasm having approached a rib.

The author's operative experience comprises 211 primary operations for cancer of the breast; 30 operations for local recurrences in his own cases; and 14 cases done primarily by other operators, totalling in all 255 cases. Out of this number there were 6 deaths.

He presents the following table of end-results. Primary operations:

	Total.	Disappeared.	Considered in paper.	Recurred in 1 yr.	Recurred in 2 yrs.	Free after 3 yrs.
Acinous,	105	21	84	25	19	40
Tubular,	75	10	65	12	8	45
Scirrhus,	25	1	24	1	5	18
Colloid,	6	2	4	0	2	2
Total,	211	34	177	38	34	105

Secondary operations for recurrence, author's cases, 30: other surgeons' cases, 14. The final outcome of most of the secondary cases is unknown with regard to the functional results obtained, the movements of the arm on the whole were good. A more or less post-operative swelling of the arm occurred in a number of instances, owing, no doubt, to a removal of all the axillary lymphatics. This swelling usually disappeared in a few weeks, after the establishment of collateral lymphatic circulation.

The author believes there will be a steady improvement in the end-results in operations upon the breast for cancer, as both the profession and the laity are becoming more alive to the fact that early and radical operation is essential.

Dr. Nathan Jacobson, of Syracuse, N. Y., read a paper before the American Surgical Association, entitled

END RESULTS FOLLOWING OPERATIONS FOR CARCINOMA OF THE BREAST,

this being a contribution to the symposium on this subject. The following is a short abstract of his paper:

The rapidity with which carcinomatous disease of the breast manifests itself is of the greatest importance. Scirrhus cancer can present as acute manifestations as those of the medullary type. One case referred to, in which death followed spinal metastasis within six months after the first evidence of the disease, confirms this statement. These acute forms of carcinoma, whatever their pathological character may be, are not amenable to permanent relief by operation, recurrence either local or general appearing in a short period despite any form of surgical operation.

A second group of cases is one in which marked susceptibility to carcinomatous invasion is evident by repeated outbreaks of the disease in various parts of

the body, without recurrence at the site of primary disease. Several cases of this type are referred to, two in which the first manifestation was in the uterus, the breast being involved at the end of two or three years subsequently. One of these patients died of recurrences which appeared rapidly for eight years; the other died within five years of cancer of the stomach. In this class of patients individual susceptibility to cancer cannot be overlooked.

Advanced age is not a contra-indication to operation, this statement being confirmed by the history of two cases, one operated upon at eighty years of age without recurrence, the second at seventy-eight with no recurrence, the woman living five years after operation, and dying of vascular disease of the brain.

Reference is made to a paper by the author presented to the Medical Society of the State of New York in 1896, in which the statistics of a so-called cancer cure institution were presented. Fifteen cases of cancer of the breast treated in that institution by cancer pastes were followed to their end result, and in each instance death followed from cancer.

The possibility of permanent cure following secondary operations for cancerous recurrence was emphasized.

The writer refers to his method of operative procedure, in which during the past ten years he has followed the technique of Dr. Halsted, except as to the removal of the supraclavicular glands. In the decade preceding the last ten years his method was that suggested by the late Dr. Samuel W. Gross to this Association at its first meeting in 1881. He refers to 71 cases of his own which he was able to follow to their end results. Thirty-five of these patients are still alive, having outlived the three-year period. Three died of intercurrent disease not cancerous. The remainder died of cancerous metastases.

Reference is also made to late recurrences, in one case thirteen and in the other sixteen years after primary operation.

ABSTRACT.

DR. J. C. OLIVER gave complete histories of 35 patients upon whom he had operated for carcinoma of the breast. The patients were all women. The histories of the living patients were complete to April 1, 1907. No case was reported which had not passed the three-year limit or which had died before the expiration of that length of time after an operation had been performed.

Twenty-two (62.85%) of the patients are dead. Twelve (34.28%) are alive and well from three to ten and one-half years after operation. One is alive more than three years after operation, but has an inoperable recurrence.

The radical operation, without removal of the supraclavicular glands, was performed thirty times. The breast was removed and the axilla cleared out seven times. (The two additional operations are accounted for by the fact that the remaining breast became involved in 2 patients, and these were subsequently removed.) The percentage of recovery after radical operations was 33⅓; that after the simpler operations was 57.15.

The reports prove that recurrences and death are unusual after the patients have remained well for three years subsequent to operation. But 3 cases died after three years of immunity — these lived respectively five, four and three and one-half years.

Three patients developed recurrences or metastases after three years,—four and three quarters, three and one-half and three and one-half years after operation.

Two or more operations were performed upon 8 of the patients. Three of these patients are alive and well more than three years after the last operation.

Twenty-one of the patients had known of the existence of a tumor for one year or longer. Fourteen (66⅔%) are dead; 6 (28.5%) are alive and well. One is alive, but with an inoperable recurrence.

Eight patients knew of the existence of a tumor from six to twelve months prior to operation. Four (50%) are alive and well.

Six were operated upon in less than six months after the recognition of a tumor. Two (33⅓%) are alive and well; 4 (66⅔%) are dead.

Recurrence above the clavicle took place in but 2 patients. The remaining breast was the seat of recurrence in 5 patients.

Lymphedema supervened in 5 patients. Three died, 1 is alive with recurrence and 1 is alive and well five years after operation.

The mortality was least in those patients in whom the tumors were located in the central area of the breast, and in those whose tumors were in the lower third of the breast.

The average duration of life after operation in fatal cases was twenty months.

The average time of recurrence was fourteen and one quarter months.

Fourteen of the 35 patients were afflicted with the disease so extensively as to give no promise of cure by operation. When these are eliminated from the statistics the author's percentage of recoveries is 57.6%.

The author concludes that the most potent factor in prognosis is the histologic character of the neoplasm. The prognosis becomes better when dealing with the hard, fibrous, slowly-growing varieties.

DR. JOSEPH RANSOHOFF, of Cincinnati, presented a paper on

VERY LATE RECURRENCES AFTER OPERATION FOR CARCINOMA OF THE BREAST,

in which he shows that 20% of patients passing the triennium of safety still had recurrence either in scar or died of metastases. After five years recurrence is less common. Eighteen of the fellows of the American Surgical Association have seen no recurrence after five years. The essayist presented a case in which the disease returned in the scar twenty-one years after the first operation. A second operation at this time was followed by return of the disease within a year, and death from pulmonary carcinoma a year later.

To ascribe the improved end results now obtained altogether to the radicalness of the operation is fallacious. The public has been educated to the dangers of delay and primarily bad cases, the ulcerated, for example, are very rarely seen in advanced communities.

The author collected from the fellows of the Association, including his own, 37 cases developing seven years or more after the first operation. Of these 26 were clearly local and 11 were doubtful. He would not include cancers of the other breast or of internal organs, like the stomach or uterus, as recurrences. Of clean local recurrences, 10 occurred during the seventh and eighth years, 2 after the ninth, tenth, eleventh, twelfth and fifteenth years and 1 each at varying intervals from fifteen to twenty-five years.

(To be continued.)

ACCORDING to the *Journal of the American Medical Association*, Dr. S. Weir Mitchell has received the honorary degree of LL.D. from the University of Toronto, Canada.

THE BOSTON

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THE ULTIMATE RESULTS, INDICATIONS AND CONTRA-INDICATIONS OF EPIDIDYMECTOMY, IN TUBERCULOSIS.

In the April, 1907, issue of the *American Journal of Urology*, appears a very complete and interesting article by E. L. Keyes, Jr., M.D., on the treatment of tuberculosis of the testicle. In this paper the author concludes very favorably for the operation of epididymectomy and records thirteen instances of this interference on eight patients. Seven of the patients recovered from the operation, and of these five were well as far as their seminal gland was concerned from one, three to ten and thirteen years afterwards.

Quenu not long ago expressed himself as follows, at a meeting of the Surgical Society of Paris: "The results that I have obtained by economical interferences have appeared very encouraging. We have followed patients from six, eight and ten years, who have never had relapses and were the possessors of their testicles. Others, especially those possessors of tuberculous epididymitides and subacute tuberculosis had relapses, but usually the recurrences were partial and easily curable; and for that matter where have we a tuberculous localization which is not susceptible to absorption of the cicatrix and the development of a new ulcerative process? Does castration prevent these recurrences? It is in reality only a partial operation to which has been added to the resection of a diseased portion, the sacrifice of an organ that has remained healthy."

A thesis was upheld at Paris in 1900 by Audebal who records thirty-one cases of partial or total epididymectomy and gives the ultimate results as follows: In twenty-five no recurrence took place; two of these patients were seen five months and six months respectively, after the operation; while the remainder were seen anywhere from one to eight years afterwards. In three cases the disease developed in the opposite testicle, in one, three years after the operation, and in one and two years afterwards respectively in the remaining two. It should be pointed out that one patient had undergone removal of the right testicle some time before epididymectomy was done on the left. There were also some cases of local recurrence. One patient developed tuberculosis of the vas deferens three years after epididymectomy; a fistula was present three years after the operation in another case, while still another patient developed a focus of tuberculosis in the vas two years after the operation. Another patient had a local recurrence in the skin immediately after the operation, while in still another case three months after epididymectomy there was a small mass adhering to the skin and the testicle. And, lastly, one patient presented two fistulæ at the time of leaving the hospital.

Humbert has performed fourteen epididymectomies, thirteen successfully, while in one case necrosis of the testicles occurred.

Atrophy of the seminal gland has nothing to do with the operation in question and is never met with when the technique has been properly carried out, when the spermatic vessels have not been injured or tied with the cord. From this point of view the genital gland cannot be compared to the liver, salivary glands or pancreas, which become atrophied after ligature of their excretory ducts. The testicle is a gland having an internal secretion just like the ovary and thyroid gland. In order to corroborate this conclusion we may mention Bardenhaur's thirty-four cases, in none of which, even as late as six years afterwards, was atrophy of the testicle observed.

It would also appear from the recorded cases that prostatic lesions and those of the vesicles are improved by the conservative operation on the epididymis, and it is quite possible that the operation may have the same action as resection or ligature of the vas deferens in prostatic hypertrophy. Duplay has expressed himself as follows on this subject: "After these economical operations on the testicle or epididymis, slightly advanced tuberculous lesions of the prostate or seminal vesicles remain stationary, or may even regress."

It is important to mention other tuberculous lesions occurring after epididymectomy. Audebal records an instance of a perinephritic abscess and caries of the sternum in the same patient

arising six years after the operation; in another, caries of the ribs occurring five years after; a third developed cystitis four years after, while a fourth developed white swelling of the wrist at the end of the same time. And lastly tuberculosis of the elbow joint took place, followed six months later by meningitis in another patient.

To sum up what has been said it would appear that the ultimate results of epididymectomy are about as good as can be expected, because by this interference the patient is freed from a painful lesion and also a dangerous focus of disease.

In order to establish the operative indications of this operation, the manner of infection of the male genital organs should be thoroughly understood. This occurs either by ascending or descending routes. The ascending form is practically the only one met with in the adult. The bacilli are stopped at the first narrow point they encounter, that is to say at the tail of the epididymis, and it is here that a number of isolated nodules are met with.

Descending tuberculosis is, on the contrary, much more frequent in children. The bacilli become naturally arrested at those points which receive the arterial supply, namely, at the apex of the testicle and in the head of the epididymis. This accounts for the presence of foci in the testicle, alone or associated with foci in the head of the epididymis.

In instances of ascending tuberculosis one may be dealing with a distinctly primary infection, the urethra having acted as the point of entrance. Instead of a localized tuberculosis, one may meet with a uro-genital tuberculosis, having already involved the kidney or the bladder, and then secondarily throwing down the bacilli into the urethra, from which point they enter the vas deferens.

The indications for operation are here to be drawn from the gravity of the co-existing uro-genital tuberculosis. More frequently the latter simply consists of a slight infection of the bladder which is not a contra-indication for operation. In cases of descending tuberculosis one may be dealing with a genital infection in a case of advanced lesions in the lung, in which case operation is to be proscribed. Then again one may be dealing with a genital tuberculosis with only very slight pulmonary lesions, in which case the operative indications are drawn from the relative importance of the two lesions. All this recalls Ollier's law, relative to local tuberculosis of the bones: (1) There are bone tuberculoses that should be resected; (2) there are bone tuberculoses which must not be resected; (3) there are bone tuberculoses which may be resected. In the same way it may be said that there are tuberculous epididymitides which *should* be operated on; there are those which *must not* be operated on, while there are other instances which *may* be operated on. Such are the general indications for the interference.

If one is in presence of a case which should be operated on, one has only to choose between epididymectomy and castration. Now what are these particular indications for the former operation? Castration is a far more radical operation than epididymectomy, or at least it appears to be a more radical interference. But although castration is a more radical operation it has, generally speaking, the same inconveniences inherent to all radical operations, namely, it completely removes the diseased organ. There is between epididymectomy and castration the same difference as between amputation of the thigh and resection of the knee in the case of tuberculosis of the knee joint. Castration is more radical than epididymectomy, but it frequently necessitates a useless sacrifice, especially when there exists, as in the case of ascending tuberculosis, only a few isolated nodules in the tail of the epididymis. And still more, castration not only means the removal of the seminal gland, which as far as it is concerned amounts to nothing since its functions are abolished by epididymectomy, but above all the removal of the interstitial gland whose action on the organism in general is at present well known.

Epididymectomy is a necessary operation in ascending tuberculosis; it is quite sufficient in the majority of cases and is, above all, an interference which respects the testicle and its interstitial gland. Occasionally this operation is insufficient, but it at least allows one to make a complete exploration of the genital apparatus and at the same time, besides removing the epididymis, any focus in the testicle can be eliminated, or if necessary the entire organ can be removed.

REPORT OF MASSACHUSETTS SCHOOL FOR FEEBLE-MINDED.

THE fifty-ninth annual report of this institution is before us, including fourteen months, ending Nov. 30, 1906. It is always a satisfaction to allude to the work which is being done at this institution, not only because of its intrinsic worth, but also because, on account of its character, it is not so widely known as its importance

warrants. It is evident to those who look at all into the future, and who are in the least acquainted with certain social problems, that the care and development of the feeble-minded, using that term in its broadest sense, is a work which may well demand the attention of citizens wholly without the confines of institutions. That this recognition is coming is not open to doubt. The problem which the public schools present in the classification of pupils of feeble intellect, the social questions connected with the moral delinquency of girls, and the possibility of rendering to some degree useful the deficient classes in general are all matters which find much explanation in the conduct of a great school for the feeble-minded, such as that at Waverley has become.

In this last report it is stated that there are, at the institution, 1,147 feeble-minded persons, of whom 1,067 are at Waverley and 180 at Templeton, the farm colony which has been developed during the past few years. The phenomenal growth of the institution naturally demands many new buildings, and several have been constructed, or are about to be, to meet the increased demand. The demands for admission have, however, come faster than the enlargement of the capacity of the institution could be made. It will be remembered that in the opinion of the trustees the limit for one institution has been reached. As a result of the recommendation of the board, provision has been made for a second school for the feeble-minded in this State. It is particularly gratifying to note the unquestioned success of the colony at Templeton. This colony affords the outlet for the energies of the older boys who do practically all the work on the farm with admirable results in the way of good crops and general improvement in the surroundings.

It is also a noteworthy fact that of 222 admissions during the time under consideration 107 were young, teachable pupils, some capable of very great improvement. The number of improvable cases admitted was greater than for many preceding years. The report in general cannot give one a complete conception of the extent and diversity of the work accomplished at the institution. Last week, however, an unusual opportunity was offered many persons to inspect the work in detail through the meeting of the American Association for the Study of the Feeble-Minded, which held its annual meeting at the hospital, many of the visitors being guests of the superintendent during their stay. The papers read at these meetings by persons interested in the various phases of the subject, both social and otherwise, gave an excellent idea of the widespread interest which the whole subject is exciting and of the remarkable progress which is being made toward the solution of the problem of the feeble-minded.

A DAY CAMP FOR CONSUMPTIVES.

It will be remembered that for the past two summers a day camp for consumptives has been maintained on Parker Hill in the immediate neighborhood of Boston. The work, which was somewhat experimental at first, proved a decided success. The object was to receive for daily treatment patients in the early or moderately advanced stages of tuberculosis, the patients returning to their homes at night and provision being made for their transportation when necessary. The expense of the treatment was placed at twenty-five cents a day, not including car fares. This fee, however, is not necessarily fixed and may be remitted or modified when circumstances demand.

We are glad to make note of the fact that the camp is to be continued this year and was opened for the season on June 5. Instead, however, of using Parker Hill for the purpose, the camp is to be on the grounds of the recently constituted Boston Consumptives' Hospital on River Street, Mattapan. We have on previous occasions commented on the excellent results which have been accomplished through this camp. It is a rational and relatively simple way of instructing persons afflicted with tuberculosis in the necessary details of hygiene, and such instruction should extend far beyond the persons who first receive it. It is, of course, evident that the campaign against ignorance and carelessness must be long continued before entirely satisfactory results may be reached. It is, therefore, essential that by every possible means the education should go on, and certainly the design of summer camps must prove an efficacious aid in the general propaganda. We heartily indorse the movement and beg to call the attention of our readers, particularly those who live in this neighborhood, to the further possibilities which this camp offers of alleviating the situation regarding tuberculosis.

Applications for admission to the camp should be made by mail or telephone to the office of the Boston Association for the Relief and Control of Tuberculosis, 4 Joy Street, Boston.

MEDICAL NOTES.

AN UNUSUAL OPERATION. — An interesting operation is reported in a recent number of the *Indian Medical Gazette* on "Extra-peritoneal transplantation of ureters into the rectum." This operation was performed by T. B. Armugan, Medical Officer in Charge, Victoria Hospital, Bangalore.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION. — At the tenth annual meeting of the American Gastro-Enterological Association, held in Atlantic City, N. J., June 3 and 4, 1907, the following officers were elected for the ensuing year: President, Dr. J. P. Sawyer, of Cleveland; Vice-Presidents, Dr. J. A. Lichty, of Pittsburg, and Dr. G. D. Kahlo, of Indianapolis; Secretary and Treasurer, Dr. Charles D. Aaron, of Detroit.

PRESIDENT OF THE AMERICAN MEDICAL ASSOCIATION. — Dr. H. L. Burrell, of Boston, was elected president of the American Medical Association for the ensuing year at the recent meeting held at Atlantic City.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 12, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 30, scarlatina 47, typhoid fever 10, measles 60, tuberculosis 47, smallpox 0.

The death-rate of the reported deaths for the week ending June 12, 1907, was 18.70.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, June 8, 1907, was 197, against 224 the corresponding week of last year, showing a decrease of 27 deaths and making the death-rate for the week 17.06. Of this number 116 were males and 81 were females; 191 were white and 6 colored; 109 were born in the United States, 83 in foreign countries and 5 unknown; 34 were of American parentage, 137 of foreign parentage and 26 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 32 cases and 2 deaths; scarlatina, 47 cases and 3 deaths; typhoid fever, 4 cases and 1 death; measles, 57 cases and 0 deaths; tuberculosis, 24 cases and 21 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 25, whooping cough 0, heart disease 16, bronchitis 3 and marasmus 7. There were 20 deaths from violent causes. The number of children who died under one year was 36; the number under five years 47. The number of persons who died over sixty years of age was 43. The deaths in public institutions were 76.

There were 8 cases and 4 deaths reported from cerebrospinal meningitis during the week.

ENDOWMENT OF THE PROFESSORSHIP OF OTOLOGY IN THE HARVARD MEDICAL SCHOOL. — Mr. Francis D. Lecompte, of New York, has endowed the professorship of otology in the Harvard Medical School in the sum of fifty thousand dollars in memory of his nephew, Dr. Walter Augustus Lecompte.

NEW YORK.

BEQUESTS TO ST. LUKE'S HOSPITAL. — By the will of James Morris, a son of Dr. Stuyvesant F. Morris, of New York, who died on May 22 at his home in Ridgefield, Conn., $37,000 is bequeathed to St. Luke's Hospital, New York. Gifts amounting to $8,000 had previously been made to St. Luke's by Mr. Morris and his wife.

DR. CHARLES W. PILGRIM RETURNS. — Dr. Charles W. Pilgrim has resigned the presidency of the State Commission in Lunacy, in order to resume his former position as superintendent of the Hudson River State Hospital for the Insane, at Poughkeepsie. For some time past, it is stated, the managers of the latter institution have been endeavoring to induce him to return.

DEATH-RATE OF THE STATE. — The last monthly report of the State Department of Health shows a low death-rate, also, in the state at large. During the month of April there were reported 12,447 deaths, giving an annual death-rate of 17.9, while the average rate for April of the past five years was 18.7. The three largest causes of death were pulmonary tuberculosis, with 1,394 deaths, pneumonia, with 1,185 deaths, and organic heart diseases, with 1,027.

SEVENTY-FIFTH ANNIVERSARY OF NEW YORK UNIVERSITY. — The seventy-fifth anniversary of the New York University was held on May 25, when 425 degrees in all (the largest number in the history of the institution) were conferred. Dr. Joseph D. Bryant received the honorary degree of Doctor of Laws, and in the medical department (University and Bellevue Hospital Medical College) the Valentine Mott medal was awarded to Maurice J. Lippman and the William T. Lusk prize to Louis H. Tuckerman.

TYPHUS FEVER AND SMALLPOX ON INCOMING STEAMER. — In consequence of the presence of typhus fever on the Red Star liner *Kroonland*,

from Antwerp, and of small-pox on the Holland-America liner *Statendam*, from Rotterdam, both of which arrived in port on May 28, all the steerage passengers of the two vessels (over 3,000 in number) were transferred to Hoffman Island for observation.

Death from Beri-Beri. — A young midshipman of the Brazilian cruiser *Tamayo* died of beri-beri on May 29, shortly after admission to the J. Hood Wright Hospital. The *Tamayo*, which with two other Brazilian men-of-war arrived a few days before from the Jamestown Exposition, was anchored in the Hudson, opposite the upper part of the city, and the patient was sent ashore for hospital treatment.

Conviction for Criminal Negligence. — Edwin Watson and his wife Mary, Christian Scientists, of Moorestown, N. J., were committed to jail on May 31, in consequence of the verdict of a coroner's jury accusing them of criminal negligence in permitting their son, seven years old, to die without proper medical attendance. The verdict also censured two Eddyite healers who had been "treating" the child. The cause of death is stated to have been pneumonia and meningitis, and shortly before the end, when the patient was comatose, a physician was called in. He very properly refused to sign a death certificate, and reported the case to the authorities.

Tuberculosis Statistics. — Dr. H. M. Biggs, medical officer of the Health Department, has been making a study of the city's tuberculosis statistics, and the results which he reports are most encouraging for continued and increased efforts for the suppression of the disease. In 1881 the death-rate from pulmonary tuberculosis in New York City (the present boroughs of Manhattan and the Bronx) was 4.27 per thousand of the population, while in 1906 this death-rate had become reduced to 2.16 in the Greater City of New York. The figures show that in 1881 there were reported 5,312 deaths from the disease, in an estimated population of 1,244,511, and in 1906, 8,955 deaths in an estimated population of 4,152,860.

Transfer of Dying Patients. — Both houses of the legislature have passed, over the veto of Mayor McClellan, a bill making the transfer of patients in a dying condition from one hospital to another a misdemeanor, punishable by a fine of $100. It has long been asserted that the large private hospitals of New York were in the habit of shipping dying patients to Bellevue Hospital, in order that their own death-rate might be kept as low as possible, and the design of this bill is to put an end to the alleged practice. The bill was regarded by the Mayor as too sweeping in its provisions, being objectionable in that it does not permit hospital authorities to refuse cases such as those of contagious disease or delirium tremens or other cases unsuitable for the wards that might be available.

Physician's Fees at Bellevue Hospital. — It has long been a rule in Bellevue Hospital and the other public hospitals that no fee should be received for any medical or surgical services; but apparently this has of late been disregarded, and some of the visiting staff of Bellevue, it is stated, have sent private patients to the hospital and charged payment for their treatment. Consequently, on June 5 the board of trustees of the Bellevue and Allied Hospitals unanimously adopted a formal resolution to the effect that the collection of fees by any member of the medical staffs of these institutions for services rendered to patients in them is, in the opinion of the board, improper and likely to lead to serious abuse and public scandal. Therefore, no member of the medical staffs of Bellevue and Allied Hospitals shall either directly or indirectly be a party to any charges made to actual or prospective patients in such hospitals.

Examining Board for Opticians. — Despite the efforts of the medical profession, the State Senate has passed a bill creating an examining board for opticians and giving them the right to practice in a limited way what is defined by the new medical law as a specialty of medicine. In consequence of this, Dr. Frank Van Fleet, chairman of the committee on legislation of the Medical Society of the County of New York, has written a circular letter to the members of the society urging them to send to the members of the Assembly and the Governor protests against the making of this bill a law. In the course of it he says: "Year after year we have successfully fought these efforts to create new boards, and we had hoped that the law creating a single board for all sorts of doctors would do away with the need for such effort; but the refracting opticians seem not to be satisfied. One of the checks on 'Christian Scientists' doing harm is that the law requires parents and guardians to secure the services of physicians when children are sick, but this optometry bill gives the opticians the right to fit children with glasses for the relief of head-

ache and other reflex symptoms. If four years of study is necessary properly to equip physicians to treat children, why should opticians receive similar privileges without complying with the same requirements?"

BAD MEATS. — The last bulletin of the State Department of Health reports that bad meats are still sold in New York. In several sections of the contents of a sample of potted ham encysted embryos of *trichina spiralis* were found, and in an outbreak of trichiniasis the origin of the disease was traced to shoulders of Western pork sold by a certain butcher. Two samples of a product labeled "Fine old English luncheon meat as prepared at Haddon Hall in the reign of Queen Elizabeth," were found to consist of large amounts of fibrous tissue and fat, with scattered pieces of skin, glands, hair, and a little muscular tissue. In a sample of "Selected chickens, finest quality," the digestion test showed 11% of insoluble residue, and in one brand of potted ham, 13% of insoluble residue. In a number of instances preservatives were detected in canned goods, while adulterations with harmless substances, such as corn meal, were used to a considerable extent. It is stated at the department in Albany that prosecutions will shortly be instituted against a number of provision dealers and canning firms as a result of this investigation. While the department has, of course, no power to stop the canning of impure food outside of the state, evidence will be furnished which will enable the federal government to prosecute the offending parties in other states.

SINGLE BOARD OF MEDICAL EXAMINERS. — On May 29 the Regents of the University of the State of New York named the nine members of the single board of medical examiners substituted by the recent medical unification bill for the previously existing three separate boards. While the new board contains several well-known physicians, its composition is distinctly disappointing. The names, as announced, are as follows: Drs. W. W. Potter, of Buffalo, W. S. Ely, of Rochester, Floyd M. Crandall, of Manhattan Borough, New York, Eugene Beach, of Gloversville, Lee H. Smith, of Buffalo, W. S. Searle, of Brooklyn Borough, New York, F. W. Adriance, of Elmira, F. S. Farnsworth, of Plattsburgh, and Ralph H. Williams, of Rochester. The first five of these are all members of the Medical Society of the State of New York, and Dr. Potter has been, until now, president of the board of medical examiners appointed by that society. Of the remaining four, two are said to be eclectics, and one, Dr. Williams, an osteopath. Dr. Smith is a graduate of the medical department of the University of Buffalo (in the year 1887), but he is not credited with any society affiliations in the State Society Medical Directory. Dr. Searle was graduated from the University of Pennsylvania Medical School, but has long been a prominent homeopathic physician in Brooklyn. Drs. Adriance and Farnsworth are both graduates of the Hahnemann Medical College of Philadelphia. The name of Dr. Williams, who is stated to be an osteopath, does not appear at all among the registered physicians of the state, as given in the medical directory, and it seems most extraordinary that a body like the State Board of Regents should have made such an appointment.

Current Literature.

MEDICAL RECORD.
MAY 11, 1907.

1. *JANET, P. *Disturbance of Vision Due to Exaggeration of Binocular Association.*
2. *ERDMANN, J. F. *Appendicitis in Infants and Children.*
3. WISE, F. *Pityriasis Rosea.*
4. *GROSS, M. *Insufficiency of the Gastric Muscle.*
5. SHEFFIELD, H. B. *Vulvovaginitis in Children with Especial Reference to the Gonorrheal Variety.*
6. *BIRCHMORE, W. H. *Is an Herpetic Origin of Pleurisy Possible?*
7. SCRIPTURE, E. W. *The Treatment of Stuttering.*

1. Janet describes an interesting case of peculiar ocular symptoms occurring in a very hysterical subject after the loss of sight in one eye. The loss of sight was accompanied by severe pains in the blind eye, for which a section of the optic nerve was made, leaving a normal looking eye, but with divergent strabismus, and some defects in the movements. There remained also an exaggerated effort to secure binocular vision, which caused the presence of a luminous cloud before the eye, and prevented any accurate sight. After study of the case the author found that by the use of a tube before the eye, as in a telescope, a microscope, or a mere tube of paper, these symptoms disappeared and the patient saw correctly. He believes that the consciousness of the blind eye, more or less confused by the defect of accommodation in a very neurasthenic subject, caused trouble in fixation and accommodation of the seeing eye. By placing before the good eye a short tube in spectacle frame he succeeded in educating the patient to see and read well with the good eye. The author observes that the treatment of nervous diseases is in the main a re-education, but it is necessary to determine accurately through psychological analysis the factor on which re-education must work.

2. Erdmann says that the diagnosis is more difficult in children with appendicitis than in adults, on account of the absence of a good history, and the complication with gastro-intestinal complaints. He discards the idea that the eating of meats is one cause of appendicitis, because he finds appendicitis occurring in milk-eating infants. The rapidity of intoxication of the child due to the spreading of the peritoneal invasion and the marked lessening of resistance in the infant are evident. The appendix has not descended to its normal position until the third or fourth year, and is often found under the costal arch, so that the point of pain and tumor is much higher than in the adult, being located in the loin. There are many gastro-intestinal symptoms, the child vomits and the temperature is elevated, while he wards off the examining hand by protecting the abdomen. Rectal palpation and

blood examination give little aid in diagnosis. Concretions have been found by the author in the appendix. Pinworms have also been found in ten cases. Floating kidney has been present in several. The author is a firm believer in early operation, with a small incision. The bowels should move the day after operation. The patient is allowed to roll, and sits up in bed by the third or fourth day.

4. Gross says that insufficiency, or atony, of the stomach is a relatively frequent affection. It differs from ectasy only in principle, not degree. Atony is a manifestation of local or general disturbance of nutrition and circulation, such as leads to general muscular and nervous debility. A simple insufficiency may be changed into a mechanical one by reason of mechanical impediments and permanent hypersecretion. In simple atony the contents are always evacuated, while in ectasy they are never entirely driven out of the stomach. Insufficiency of the gastric muscle is curable, and not of a serious nature. In addition to the wave motion of the stomach in digestion there is a lifting factor due to contraction of the powerful longitudinal fibers radiating from the cardia to the pylorus. In atony this lifting force is absent. The muscle may overcome the obstacle presented completely, by means of reserve force, or by compensation, from muscular hypertrophy. This is dependent on the integrity of the regulating system of the stomach, and that on the circulation and enervation. Retardation of digestion is the first sign of insufficiency. The best method of diagnosis of insufficiency is by drawing out the stomach contents after a test meal. There should not be more than 100 cc. of fluid. Inspection of the stomach shows stiffening of the stomach, and splashing sound and percussion aid in the diagnosis. One to three glasses of water drunk on an empty stomach show its size and the elasticity of the walls. Enlargement indicates diminished tone. After a test meal percussion and splashing sound show capacity. Auscultatory percussion is best. The prognosis is favorable when the condition is early recognized. The vis medicatrix naturæ, aided by irrigations, or douches, mechanical, electric and hydropathic measures, is the best method of treatment.

6. Birchmore details a case in which there had been repeated attacks of herpes in different locations, synchronous with pains of the chest in which no physical examination had been made. An attack occurred in which pleurisy signs were localized over a limited area, but no effusion occurred. The pain was not so much of the shooting character that is typical of pleurisy, but a general condition of pain over the chest muscles. Over the area of pain there appeared a series of herpetic vesicles. The author brings up the question of whether rheumatism and pleurisy may not be caused in some instances by a condition of the system that also produces ordinary herpes, the external lesion alternating with the lung or joint condition.

May 18, 1907.

1. Gorgas, W. C. *Sanitary Work on the Isthmus of Panama during the Last Three Years.*
2. *Starr, M. A. *A New Type of Ataxia.*
3. *Barringer, B. S. *The Diagnostic Value of the Cystoscopic Examination in Carcinoma Cervicis Uteri.*
4. *Crowley, C. R. O. *Internal and External Remedies in Urinary Diseases and their Comparative Value.*
5. Brown, W. E. *Twenty-five Years' Experience in the Treatment of Malignant New Growths with Escharotics.*
6. Morton, W. J. *Pre-operative Radiation and Surgical Treatment of Cancer.*

2. Starr presents a case of ataxia of auditory origin. There were no symptoms of cerebellar disease or of tabes. There had been a gradual atrophy of the cochlear division of the auditory nerve, accompanied by deafness. At the same time there had been an atrophy of the vestibular division of the auditory nerve, cutting off the impulses from the labyrinth which are necessary to preserve the balance.

3. Barringer discusses fifteen cases of carcinoma of the cervix and bladder observed by him, in the examination of which he endeavored to determine the value of cystoscopic examination in such cases. He gives us his conclusions. Cystoscopic examination in early carcinoma confined to the cervix is valueless. It is the most accurate method of diagnosis of the condition of the vesicovaginal septum in carcinoma involving the lateral or anterior vaginal walls. Examination should be made of the direction of the urethra and position of the trigone; for tumors encroaching upon or causing retraction of the bladder and alterations similar to those occurring in vesicle and paravesicle inflammation and of alterations caused by carcinoma of the bladder. Cystoscopic examination also reveals any inflammatory condition of the bladder which might prevent success of an operation. This examination becomes more important as the growth extends and the nearer it approaches the border land between operative and nonoperative cases.

4. Crowley brings to our notice the comparative value of the drugs used in urology, contrasting the old and new. Diluents, pure and mineral waters are useful, because of their water solely. Sodium benzoate is the best acid used to alkalinize the urine. Potassium acetate, nitrate, citrate and tartrate are most useful as diuretics and antacids. As antiseptics hexamethylenetetramine is most valuable in subacute and chronic urinary diseases. Opium and its alkaloids and belladonna are both useful as sedatives and antispasmodics. Antihemorrhagics are of little use. Digitalis is useful only by its action on heart pressure and should not be used in acute kidney troubles. It must be used with discrimination. Caffeine is especially useful in dropsy, but is a stimulant to the kidney and not applicable in acute nephritis. Among antiblenorrhagics sandalwood is least irritating, and copaiba next. The irritation depends on the contained terpenes. The newer silver preparations do not depend for their value on their antibactericidal power, which is small, but upon their greater penetration into the urethral submucosa and effect on the gonococci and their nonirritating character. For irrigation saturated solution of boracic acid and formalin are recommended. Astringents are useful after the germs are gone from the urine.

New York Medical Journal.
May 11, 1907.

1. *Schott, T. *On Chronic Muscular Diseases of the Heart and Their Treatment.*
2. *Hoke, M., and Andrews, C. R. *Treatment of the Bone Deformity of the Thorax and Spine in Scoliosis by Plaster Jackets, Utilizing the Expansion of the Lungs as a Corrective Force.*
3. Taylor, J. M. *Artificial Supports for the Viscera.*
4. Vineberg, H. N. *Appendicitis in Pregnancy.*
5. Webster, D. *Two Cases of Traumatic Cataract with Operation.*
6. Campbell, J. T. *The Relation between Disease of the Tonsils and Enlargement of the Glands of the Neck.*
7. Hollmann, H. T. *The Use of Baths in the Treatment of Leprosy.*
8. Friesner, I. *Unrecognized Diphtheria in Children.*
9. La Wall, C. H. *Danger of Fire in Formaldehyde Disinfection.*

1. Schott calls attention to the results of modern physiological studies in showing the importance of the condition of the cardiac muscle to the proper fulfillment of the functions of the heart. Coronary sclerosis produces fibrous changes; fibrile diseases, intoxications, kidney disease, errors in diet, hygiene and work, all have their effect upon cardiac muscle. Formerly the treatment of heart disease was confined to rest and digitalis. More recently substitutes for digitalis have been tried, and other drugs have proved of benefit, salts of iodine especially, sodium iodide and amyl nitrite in angina pectoris, morphia and drugs of the antipyrin group. But in all drug treatment the danger of doing harm must be considered. Of late much attention has been directed to physical methods in the treatment of chronic cardiac disease, mechanical, balneological and dietetic measures. The diet in heart disease should be planned to avoid distention of the stomach, flatulence or difficulty of digestion. Food should be taken in small quantities and at frequent intervals. Even in fatty heart the total nourishment should be great enough to prevent any but a very gradual loss of weight. Large quantities of fluid at one time, especially effervescent drinks, are to be avoided, but severe restrictions of fluid intake are harmful, since such treatment detracts from the patient's

general condition. To improve the functioning power of the heart muscle marked success has been obtained by the use of thermal saline baths containing carbonic acid, by carefully graded mechanical exercises and by these two methods in combination. Cases are reported illustrating results; the courses of treatment, however, are described only in general terms.

2. Hoke and Andrews describe their method of applying plaster casts to correct deformities of the chest which result from scoliosis. The plaster is applied as usual, but after its application a considerable area over the less prominent side of the chest so that this depressed side will expand more easily than the other and tend to regain its normal prominence. The article is well illustrated.

[F. W. P.]

MAY 18, 1907.

1. *EINHORN, M. *Diagnosis and Treatment of Acute Intestinal Obstruction.*
2. *COLLINS, J. *Symmetrical Adenolipomatosis.*
3. *LILIENTHAL, H. *Drainage in Operations upon the Biliary System.*
4. *VANCE, J. *The Surgical Treatment of Fibroid Tumors of the Uterus Complicated by Pregnancy.*
5. OLIVER, J. *External Hemorrhage in Association with Ectopic Pregnancy.*
6. VOORHEES, E. B. *State Regulation of the Milk Supply.*
7. SIMPSON, F. T. *A Case of Hydrophobia.*
8. TURNER, J. B. *Acute Superior and Inferior Polio-encephalitis.*
9. SHOEMAKER, H. *Backward and Defective Children.*

1. Einhorn reviews the symptoms of acute intestinal obstruction and considers especially the determination of the point at which the obstruction lies. The initial pain if localized usually points to the seat of the disease. There may also be localized tenderness, and there may be a visible or palpable distended coil of intestine above the seat of obstruction. Obstruction of the small intestines gives more violent symptoms than obstruction of the large, and an earlier appearance of indicanuria. Experimentally in frogs it was possible to determine the point of occlusion by the x-ray. This Einhorn was also able to do in a case of chronic obstruction of the large intestine in man, the patient having been given bismuth solution twenty-four hours previously. The treatment is operation as early as possible, previous to which the patient is to be kept at rest, without nourishment by mouth, with salt solution by rectum or subcutaneously, and morphin and atropin subcutaneously. Lavage of stomach and colon may give temporary relief. In extreme cases where operation is impossible, puncture of the bowel is justifiable.

2. Collins reports four cases of symmetrical adenolipomatosis. The condition is one in which multiple fatty tumors develop in bilaterally symmetrical positions in various parts of the body. It is often associated with signs of an alcoholic neuritis; in all probability it is a neurotrophic disorder. It may bear some relation to adiposis dolorosa. While some cases recover, the course of the great majority is progressive, the patients finally dying of the cachexia which accompanies the disease or from compression in the mediastinum. In Collins's cases no treatment had any beneficial effect.

3. Lilienthal urges that in cases with obstructive jaundice nothing but drainage of the gall bladder should be attempted at the first operation, deferring all attempts to remove the cause of disease until the cholemia has subsided.

4. Vance concludes from the fact that the maternal mortality of pregnancy complicated by fibroid is estimated at from 25% to 55%, and the child mortality 77%, all such cases should be treated surgically and not obstetrically. All cases of abortion or miscarriage which cannot be stopped, and all cases in which pressure symptoms endanger the life of the mother should have immediate hysterectomy. Myomectomy is possible in but few cases. Hysterectomy is the procedure which is attended with lowest maternal mortality. In primiparæ and when the patient can be kept under close observation the pregnancy may be allowed to go on to term and then before labor begins a cæsarean section hysterectomy performed with maternal mortality of 15.6% and a child mortality of less than 5%.

[F. W. P.]

THE LANCET.

MAY 11, 1907.

1. HALLIBURTON, W. D. *New Facts in Relation to the Processes of Nervous Degeneration and Regeneration.*
2. MORISON, A. *The Causes of Cardiac Motion and Disordered Action.*
3. LANE, W. A. *On the Treatment of Fractures in the Vicinity of Joints.*
4. *SHAW, C. J. *The Opsonic Index to Various Organisms in the Sane and Insane, with the Results Produced by Injecting Tuberculin.*
5. HAWTHORNE, C. O. *On the Clinical Aspects of Metastases to the Central Nervous System and Other Parts in Malignant Disease of the Viscera.*
6. THYNE, W. *A Case of Paratyphoid Fever Following the Removal of an Ovarian Cyst.*
7. *SHEPPARD, A. L. *Perforation in Typhoid Fever and Its Relation to the Blood Pressure, with a Report of Five Cases.*
8. VINTRAS, L. *Status Lymphaticus.*

4. Shaw concludes that the insane are particularly liable to tuberculous infection. His paper consists of a careful study of the opsonic index of the insane compared with normal individuals, with remarks on the use of tuberculin in the diagnosis of tuberculosis in its earlier stages.

7. Sheppard does not believe that the rise of blood pressure as a sign of perforation in typhoid fever is so certain a sign as Crile's figures indicate, although it is one of the lesser indications which should be considered. He reports his results in 5 cases. He thinks it quite as constant as a leucocytosis.

[J. B. H.]

MAY 18, 1907.

1. BLAND-SUTTON, J. *The Cancer Problem.*
2. BARLING, G. *Pelvic Appendicitis with Parappendical Abscess and Cystitis.*
3. *OLIVER, G. *Some Notes on the Control of Super-Normal Arterial Pressure.*
4. POPE, F. M., and REYNOLDS, W. E. *A Case of Chloroma.*
5. KELSON, W. H. *Diseases of the Upper Respiratory Passages in Relation to Life Assurance.*
6. LIDDELL, J. *Some Clinical Observations on Muco-Membranous Colitis.*
7. PORTER, C. R. *A Case of Confluent Hemorrhagic Eruption in Varicella.*
8. BOSANQUET, W. C. *A Note on the Albuminous Bodies Present in Pathological Effusions.*

3. Oliver speaks on the various methods of controlling super-normal arterial pressure. He used a modification of the Riva-Rocci instrument. As to diet he advises carefully limiting the total solids and fluids as well as animal extractives and salt. Absolute rest is of the greatest importance except in patients of a lethargic disposition, when moderate exercise is invaluable. A carefully regulated course of baths may help. He has had especially good results with the D'Arsonval current, with falls from 220 to 150 mg. of mercury in pressure. The care of the skin is very important and a warm equable climate is invaluable as an aid to this. Venesection he has rarely used. As to medicinal treatment, it should be directed along the lines of securing free evacuation and correction of the liver and bowels with gastro-intestinal antisepsis and, secondly, vasodilatation and sedatives of the vasomotor system. He empahsizes the fact that high blood pressure is often a necessary evil and not to be reduced without a careful consideration of the causes producing it.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

MAY 11, 1907.

1. STODDART, W. H. B. *Remarks on the Early Symptoms of Mental Disorder.*
2. HURRY, J. B. *Vicious Circles.*
3. PARRY, T. W. *On the Differential Diagnosis between Ménière's Disease and Other Cases Exhibiting Ménière's Complex of Symptoms.*
4. WALLACE, D. *Nine Cases of Carbolic Acid Gangrene, with Short Notes.*

5. Forsyth, J. A. C. *An Early Specimen of Total Enucleation of the Prostate Removed by the Late Mr. McGill.*
6. Halliburton, W. D. *New Facts in Relation to the Processes of Nervous Degeneration and Regeneration.*

May 18, 1907.

1. *Saundby, R. *Remarks on Chronic Splenomegalic Polycythemia.*
2. Parker, G. *A Case of Splenic Leukemia Complicated with Gout and Albuminuria.*
3. Pare, J. W. *Local Anesthesia by Novocain.*
4. Bond, C. J. *Regeneration of Nerves with Regard to the Surgical Treatment of Certain Paralyses.*
5. Strangman, M. S. P. *Morphinomania Treated Successfully with Atropine and Strychnine.*
6. Charteris, F. J., and Cathcart, E. P. *The Physiological Action of Whiskey on the Circulation.*
7. Cree, J. D. *Calcium Salts in the Treatment of Certain Types of Pneumonia.*
8. Wilson, W. J. *New Method of Isolating the Bacillus Typhosus from Infected Water.*
9. *Forsyth, D. *The Structure and Secretion of the Parathyroid Glands in Man.*

1. Saundby describes this disease as a condition characterized by debility, high blood pressure, general redness or cyanosis of the skin, splenic enlargement and polycythemia with a corresponding increase of the hemoglobin, but with no increase of the white cells. As in pernicious anemia there are periods of remission when the patient feels quite well. The disease extends over seven to eight years, generally ending by heart failure or cerebral hemorrhage. Out of 46 recorded cases 26 were males and 20 females. The writer gives 2 cases in detail. The theories as to the origin of this disease are as follows: (1) A primary over-production of the red cells in the bone marrow. (2) Stasis. (3) Diminished respiratory capacity of the blood. (4) Diminished destructibility of red blood corpuscles. According to Haldane and Smith there is an actual increase in the total amount of the blood and not merely peripheral stasis. Saundby, however, believes that the disease is not a primary one of the bone marrow or spleen, but that it is due to some obstruction of the circulation, probably in the middle-sized arteries and arterioles.

9. Forsyth presents a detailed study of this histology and physiology of the parathyroid glands. He concludes that this gland, like others, presents the histological variations of activity and rest. Its secretion in its physical characters and in its micro-chemical reactions appears indistinguishable from the colloid of the thyroid. During the first few months of life it shows little if any activity.

[J. B. H.]

The Edinburgh Medical Journal.

May, 1907.

1. *Croom, H. *Exophthalmic Goiter in Its Relation to Obstetrics and Gynecology.*
2. Porter, W. G. *Some Points in the History and Technique of the Submucous Resection of the Nasal Septum.*
3. Peters, G. A. *The Treatment of Gall Stones in the Gall Bladder and Cystic Duct.*
4. Smith, W. G. *The Integrative Action of the Nervous System.*
5. *Stewart, T. S., and Ritchie, L. C. *On the Use of the Opsonic Index in the Diagnosis of Tuberculosis.*
6. Eason, J. *Phagocytosis of Erythrocytes, and the Question of Opsonin in Paroxysmal Hemoglobinuria.*
7. Carter, A. H. *Two Cases of Periodic Fever Resulting from Animal Bites.*

1. Croom concludes as a result of his personal observation of exophthalmic goiter as complicating pregnancy that the goiter is enlarged during pregnancy, that exophthalmic goiter and pregnancy are a very rare combination, he having met this not once in 15,000 cases of pregnancy in hospital practice. Pregnancy usually aggravates the disease, while the exophthalmic goiter does not affect pregnancy. Finally he concludes that as a complication of pregnancy or as a bar to marriage exophthalmic goiter need not be considered.

5. Stewart and Ritchie have experimented on the opsonic index and injections of tuberculin as a means of making an early diagnosis of pulmonary tuberculosis. They conclude that a single estimation of the opsonic index is an unsatisfactory procedure; that if a negative phase appears after inoculation the presence of tuberculosis may be diagnosed, while the absence of a negative phase indicates the absence of a tuberculous infection.

[J. B. H.]

Deutsche Medizinische Wochenschrift, No. 18.

May 2, 1907.

1. Morgenroth and Rabinowitsch. *The Immunity Reaction of Tubercular Tissues and Its Relation to the Action of Tuberculin.*
2. *Determann. *Diagnosis of Subphrenic Abscesses.*
3. *Trappe, M. *A Sporadic Case of Anguillula Intestinalis.*
4. *Hartmann, A. *Nasal Headache and Nasal Neurasthenia.*
5. Ewald, P. *Etiology and Diagnosis of Loose Bodies in the Knee Joint.*
6. Dreyer, A. *Spirochetæ in Venereal Warts.*

2. Determann recounts in detail the history and post-mortem findings of a case of subphrenic abscess in which the diagnosis of empyemia was made. There were no symptoms referable to the abdomen or liver and the physical signs were those of the chest. Pus was obtained by puncture in the eighth and ninth spaces and encapsulated empyema seemed most probable. At autopsy a subphrenic abscess was found to be the cause of the trouble. After discussing the value of the various signs, the author concludes that the x-rays offer the surest means of diagnosis in doubtful cases.

3. Trappe relates a case of chronic diarrhea occurring in Silesia in which large numbers of the Anguillula intestinalis were found. This parasite is very commonly found in the chronic diarrheas of lower China and the Indian Archipelago, but is very rare in Europe. The most recent investigators claim a casual relationship between this parasite and the diarrhea, but as yet this is not fully established.

4. Hartmann considers that the irritation of pathological processes in the upper air passages, especially in the nose, are not ordinarily given due importance as a cause of migraine and its accompanying neurasthenic conditions, and that consequently treatment is often inefficient.

[L. G. M.]

Correspondence.

LETTER FROM PARIS.

[*From our Special Correspondent.*]

The Clinical Sense.

Paris, May 31, 1907.

Mr. Editor: I am sometimes moved to wonder at the degree to which the clinical sense is lacking in some physicians, who have had the best possible training and a wide hospital experience, but whose inclinations have been rather toward laboratory work and research than to the sterner problems of actual medical practice. Here is a recent instance.

A woman of sixty, in the frailest of health from advanced bilateral pulmonary lesions, developed a skin eruption of a pruriginous character which caused her a great deal of discomfort. Her physician, a well known man, admirably qualified, proceeded to put her on a strict treatment for gouty eczema, the sort of thing that would be prescribed for a florid, high-living Englishman, with generations of port-drinking ancestors behind him; suppression of all butcher's meat and of alcohol; internal lavage by means of liquids in abundance; the juice of several lemons *per diem;* and massive doses of citarine.

Now to treat such a case on this line is to show oneself lacking in the clinical sense that ought to go so far toward making the successful practitioner. With this woman the feature entirely predominating in the clinical tableau was the pulmonary condition with its ensuing cachexia; the skin lesion was a mere intercurrent detail, that should have been held in abeyance by purely local measures, every effort being expended toward safeguarding what

remained of the woman's digestive and assimilative powers. All of the means prescribed — dilution of digestive juices, an excess of acid, meager diet and large quantities of drugs — could have but one result: to hasten the patient onward toward the fate that is approaching only too fast at the best. Her physician acted here as a theorist; as a practitioner his view of the case was deplorable. When the laboratory man deserts his bouillons and guinea-pigs, and undertakes to deal with disease as manifesting itself in human beings, trouble is apt to result.

Now as regards the citarine prescribed for the patient, admire the clinical sense again.

Citarine, a chemical friend of mine tells me, is a disodic salt of anhydromethylene citric acid, analogous to helmitol, which is a combination of this acid with urotropine. I didn't know that, and I'll venture to say you didn't either. It is one of the latest "physiological eliminators" of uric acid. Have you ever paused to run over in your mind the history of these "physiological eliminators"?

We began with lithia, both pharmaceutical and in natural waters, effervescent or still; and the vogue of this drug was a protracted one. On what grounds was it administered? Solely on examination of urine, and generally on but one single examination. An analysis showed uric acid in excess. "That will never do," exclaimed the physician, "this tendency must be checked: no meat, lithia, etc." Now he knew that there was more uric acid in the urine than is customary; but what did he know about the state of the blood or tissues, granting for the moment uric acid to be a causative factor of disease? Or how did he know but that the excess was a mere temporary state, that would pass off in a few days, and depended on causes of which he was entirely ignorant and on processes with which he would do better not to interfere? Are biological problems of such childlike simplicity that we can reduce them to a mere algebraic equation: uric acid=lithia? Suppose, for instance, that there was an excess of uric acid in the blood and that Nature was busy throwing it off; does it show much clinical sense to interfere in our blind and clumsy way with something that Nature is already attending to herself? It would really seem more logical to give these patients lithia when the uric acid is below the average, if urinary analysis is all we are to be guided by.

After a while, however, lithia no longer seemed to fill the bill, exactly, and piperazine made its *début*, advertised, as I remember, as a solvent of uric acid twelve times as powerful as lithia (in a tube!); and for a time this drug with its bizarre name held the floor undisputed, while the worshipers of the uric acid fetish took it in large quantities with becoming credulity.

Then came lycetol, with still greater advantages over its predecessors (said the prospectus); but somehow or other the "physiological eliminator" never seemed to catch on seriously, and its career was not a very brilliant one. Maybe it appeared at too short an interval after piperazine, before the latter had ceased to cure the faithful, or perhaps it was not sufficiently widely advertised in the daily public press, where the uric acid crowd could see it, cut it out and come and ask their physicians about it.

After that, one of our leading consultants, who goes in for new, and especially startling, things, and who always likes to be just a wee bit ahead of the times, began prescribing an apparently unknown substance, sidonal; and each of us, as opportunity occurred, dropped in confidentially at our chemist of predilection to ask him what the new Messiah might be, — and found that it was nothing more than a *nom-de-plume* for quinate of piperazine! Finally this same consultant fairly staggered the medical community by prescribing for all of his uric acid patients globularine and globularetine associated together!

Since then I only remember citarine (mentioned above), and, what appears to be the latest comer in the field, solurol (a term for pure thymic acid); though undoubtedly "*j'en passe, — et des meilleurs.*" But what a collection of names! Would it not seem as though these drugs acted mainly by their mysterious appellations, which serve as a cloak to hide their possible worthlessness, — *omne ignotum pro magnifico?*

Now this is an approximate list of a remarkable class of drugs, which only sins once, and that is, in its very foundations. Is uric acid the cause of the disorders for which hese substances are prescribed; and if it is, does their administration get it out of the system any faster than Nature chooses?

The uric acid idea is one that has taken such a firm hold of the public mind, and has been used as a conjuring word so often by physicians in times of need, that to hope that we shall be able to bring people some day to grasp the fact that the term is merely "sounding brass or a tinkling cymbal" seems little less than quixotic. So thoroughly has it been inculcated into the public mind that if it were possible to kill it, nail it up in a coffin and bury it under six feet of earth, it would still find means to ooze out through the pores of the wood so that the earthworms could bring it again to the surface, like Pasteur's anthrax bacilli.

What physician does not constantly meet the patient, generally female, who informs him before he has even a chance to begin that "My trouble is uric acid," or "My system is saturated with uric acid." And this is launched at his head with a self-complacent tone, such an air of finality (as though that settled the whole business and all that was wanted of you was to prescribe) as it is quite impossible to describe in words.

The idea has a perfect fascination for the lay mind, which likes nothing so much as to be able to find a cause for disease. Look at a woman with mammary carcinoma; she has but one idea and never rests until somewhere in the remote past, twenty or thirty years previously, she can recall having fallen against the angle of a piece of furniture or something of that sort. The uric acid theory seems to them so plausible, so easy to understand, and explains everything (to them).

For nearly a century now has uric acid held its sway almost undisputed. Is not somebody soon going to bring this tyranny to an end? Who is the coming David? A number of the best men are already on record as to their entire disbelief in uric acid as a causative agent in disease; but the rank and file of the profession still seem to accept this tenet with as much faith as ever.

We have, however, all sinned in this connection, and it behooves one to be circumspect in sitting in judgment. But although it is difficult to stem a current of such force as the uric acid belief, we can at least preserve our self-respect and show clinical sense by only prescribing these remedies when we see that there is no other way out of the predicament and that the patients have made up their minds to have "the same stuff that cured Mr. X." But how it does go against the grain to have to truckle to such impertinent ignorance; for who can conscientiously say that he ever saw definite clinical results, that he felt could be demonstrated, produced by the administration of this class of remedies? And if lithia, which was prescribed for so many years with such perseverance, gave any real results, why have so many drugs been devised to take its place? The truth is that we are sad creatures of routine, and that the clinical sense has not been so largely poured out over even the best of us as could have been desired.

The worthy Plato was wont, when he observed that his audience were lolling out their tongues with *ennui* toward the end of one of his dialogues, to interrupt his interminable cross-questioning and proceed to cheer up their drooping spirits a bit with one of those tales known as his "myths." Now as all this talk about medical deficiencies and "physiological eliminations" may not have proved very lively reading, coming from a city of the reputation of this one, let me in my turn endeavor to do something of a similar nature.

For many years now I have lived on terms of close companionship with a fox terrier, not an animal of pedigree or medals, just a plain dog. During this time he has undoubtedly improved my character in several particulars, and I trust that my efforts in turn have not been without effect on his moral betterment. Time only increases my admiration for the good qualities of this dog; but where this feeling simply knows no bounds is in connection with his clinical sense. His eating of grass (*poa canina*) I have never yet been able to fathom; it seems to correspond to no special need; he just does so when it happens to occur to him, and it produces no particular effect so far as I can see. But where he is simply grand, epic, is when he undertakes to see himself through an acute attack of dyspepsia.

Dogs when they were wolves always hunted, killed and ate in packs; they also lived in constant uncertainty as

to where they would get their next meal. They consequently always ate as rapidly as possible for fear of the rest of the pack getting more than its share of the kill, and they loaded up to the fullest extent in view of the constant uncertainty as to future supplies. These traits of atavism the dog of the present day still exhibits, with (now that they are generally alone and food is more than ample) more or less constant overeating and subsequent attacks of acute dyspepsia occurring at regular intervals.

Well, observe your dog in one of these attacks and take the lesson to heart. He is seized with vomiting, diarrhea, fever and pains in his underneath. Now a *man* who has been going in for gastronomic indiscretions and develops this symptom-complexus, immediately jumps to the conclusion that he has appendicitis and gets his wife in great alarm to send for the doctor, who in this up-to-date period talks of "ptomaine poisoning" and sends for a nurse, and then the racket begins: stomach washing, intestinal antiseptics, medicine, broths, milk, vichy, beef extracts, etc., piling on the fuel hammer and tongs to keep the fire up as long as possible. If the patient is a man of importance, the doctor stays in the house a night or two, to be ready for emergencies and to convey a due impression of the seriousness of the affair, and finally the patient is "pulled through" the attack, to use the consecrated term. What would our good old ancestors, the men of the blue pill and black draught times, have thought of this rumpus over what they would no doubt have irreverently called an ordinary belly ache!

Note now what your dog has done. Curled up in his basket in a tight little ball, with dry nose and face a picture of utter woe, he lies motionless; at most he gets up now and then to drink a little fresh water, but that is all. Think of his special "vanities," — milk, fried liver, rare meat, — anything he is gluttonous over when well and try him with them; he will not even move his head, but looks at you with eyes of wonderment that you should even think of proposing such things at a time when, as he seems to say, any one can see that luck has clean gone back on him. Then with a gesture of decision he tucks his nose more securely under his bent forepaw and resolutely closes his eyes, to try to forget his troubles till the clouds roll by. And he will stick this out for three, four or five days, until you are really growing anxious, when he suddenly bobs up as good as new, perfectly well.

There is clinical sense for you. No milk and vichy, condensed extracts or antiseptics for him; absolute quiet and a plain water diet will, he knows, do the trick, — the diet which we now use with success for children in all their gastro-intestinal disorders and which we could have had at our disposal from all time if we had been possessed of the common sense of the ordinary household dog, the animal we refer to disparagingly as *canis vulgaris sive domesticus*.

"Spectator."

P. S. I wish to qualify one remark. There is a picture of even greater woe than a sick dog. Give a monkey some common rum mixed with preserves, stewed guavas, for instance, of which his kind is very fond, and then go and look at him the next day as he sits in a heap, with swelled head and burning insides, recovering from *his* "ptomaine poisoning" in the ashes of sorrow and repentance!

THE BOSTON SOCIETY OF EXAMINING PHYSICIANS AND SURGEONS.

Office of the Secretary,
141 Milk St., Boston, Mass.,
May 27, 1907.

Mr. Editor: With the increase in numbers of physicians who regularly make physical examinations of various kinds for purposes other than for the prescribing of drugs has come a demand for organization, that these men by frequent intercourse and discussion with others along similar lines may improve their efficiency and enhance the value of their examinations.

Boston alone of all the large cities of the country had, until recently, no organization of this character. The Boston Society of Examining Physicians and Surgeons was organized in April of this year, and already has a membership of over 60. The membership is composed of physicians and surgeons, and men of special lines, who regularly examine cases for life, casualty and fraternal organizations, for the purpose of testifying in court, for admission to institutions, or for the purpose of giving opinions as to disability from accident or sickness.

The scope of the Society is broad enough to invite to its membership all qualified persons engaged in this work. Its object is to bring together practical workers three or four times a year for the discussion of the problems incident to the various lines of endeavor represented in the Society, that we may be broadened by contact with others and be strengthened in our search for truth.

The next meeting of the Society will be in September, at which meeting Chief Justice Aiken, of the Superior Court of Massachusetts, Dr. Brandreth Symonds, Medical Director of the Mutual Life Insurance Company of New York, and our own member, Dr. Geo. B. Magrath, Medical Examiner for Suffolk County, will address us.

For those who are interested in this work, there is no question but that affiliation with this Society will broaden their ideas and keep them in touch with the problems which confront us daily. By sending their names to the Secretary, they will receive an application blank and their names will be acted upon so that they may be able to take advantage of the fall meeting. The dues are nominal, being $2.00 per year.

Any further information in regard to the purposes of this organization will be gladly furnished by the Secretary.

Very truly yours,
Francis D. Donoghue, *President.*

"GALLSTONES WITHOUT SYMPTOMS AND SYMPTOMS WITHOUT GALLSTONES."[1]

New York, June 3, 1907.

Mr. Editor: In the New York *Medical Record* of Oct. 20, 1894, pp. 485, 486, I wrote a short article on "Acute biliary distension of the gall bladder." At that time these cases had not been fully and accurately described, as I believe. In my paper I stated that: "To my mind, these attacks of acute distension of the gall bladder with bile are not unlike, in their analogy with the development of calculous disease of the gall bladder, to what we have similarly defined, when we consider the relationship of the pre-albuminuric stage of chronic Bright's disease with the development of nephritis as a clearly formed malady. To give a plausible explanation of the etiology of these cases, I am almost forced to admit the existence of a spasmodic contraction of the gall bladder which is sufficient to shut off in part temporary connection with the cystic duct."

To the readers of Dr. Maurice H. Richardson's very able and interesting article, I am confident my own small contribution of many years ago will be considered as a complementary addendum that merits being referred to.

Very truly yours,
Beverley Robinson, M.D.

A SYMPOSIUM ON HYDROTHERAPY.

Atlantic City, N. J., June 6, 1907.

Mr. Editor: A conference of physicians interested in hydrotherapy was held at the Hotel Marlborough, Atlantic City, on the 4th of June, 1907. Dr. Simon Baruch was called to the chair and Dr. Frank E. Brown was appointed secretary.

Representative physicians from several states discussed the importance of furthering the study, teaching and practice of hydrotherapy and other physiologic methods. A committee consisting of Professors Hare, of Jefferson, Thayer, of Johns Hopkins, Baruch, of Columbia, and Dr. F. E. Brown, of Baltimore, were appointed to formulate a symposium on these subjects for the next meeting of the American Medical Association.

Very truly,
Frank E. Brown, *Secretary.*

[1] Bost. Med. and Surg. Jour., May 30, 1907.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 1, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,344	400	Quincy	1	—
Chicago	643	176	Waltham	7	—
Philadelphia	—	—	Pittsfield	7	0
St. Louis	—	—	Gloucester	5	1
Baltimore	154	52	Brookline	6	0
Cleveland	—	—	North Adams	5	2
Buffalo	—	—	Chicopee	7	4
Pittsburg	—	—	Northampton	10	3
Cincinnati	—	—	Medford	5	1
Milwaukee	—	—	Beverly	6	—
Washington	—	—	Leominster	1	—
Providence	53	15	Hyde Park	5	1
Boston	246	58	Melrose	—	—
Worcester	38	8	Newburyport	—	—
Fall River	30	18	Woburn	3	—
Cambridge	26	8	Marlboro	1	0
Lowell	31	9	Westfield	3	1
Lynn	31	9	Peabody	—	—
New Bedford	20	5	Revere	6	—
Springfield	25	6	Attleboro	3	0
Lawrence	—	—	Clinton	3	0
Somerville	16	4	Adams	3	—
Holyoke	19	6	Gardner	—	—
Brockton	13	3	Milford	—	—
Malden	10	6	Watertown	1	0
Chelsea	11	4	Plymouth	—	—
Salem	9	2	Weymouth	2	0
Newton	7	—	Framingham	9	2
Haverhill	11	3	Southbridge	—	—
Fitchburg	5	1	Wakefield	—	—
Everett	6	2	Webster	—	—
Taunton	—	—			

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDED MAY 29, 1907.

WHITE, J. H., surgeon. Detailed to attend meeting of the American Society of Tropical Medicine, Philadelphia, Pa., June 7. May 27, 1907.

MCINTOSH, W. P., surgeon. Granted leave of absence for one day, May 24, 1907.

ROSENAU, M. J., passed assistant surgeon. Detailed to attend meeting of the American Medical Association, and also the Section on Pathology and Physiology, June 4 to 8, 1907. May 22, 1907.

WICKES, H. W., passed assistant surgeon. Directed to proceed to Perth Amboy, N. J., June 18, for the purpose of assuming temporary charge of the Service, during the absence of Assistant Surgeon Mullan. May 29, 1907.

ANDERSON, JOHN F., passed assistant surgeon. Directed to proceed to Savannah, Ga., for special temporary duty, in connection with the outbreak of typhoid fever. May 28, 1907.

ROBINSON, D. E., passed assistant surgeon. Relieved from duty at Baltimore and directed to proceed to Ellis Island, N. Y., reporting to the chief medical officer for duty. May 28, 1907.

WILLE, C. W., passed assistant surgeon. Granted leave of absence for eight days from May 12, 1907. May 11, 1907.

BERRY, T. D., passed assistant surgeon. Granted leave of absence for one day, May 23, 1907.

MCLAUGHLIN, A. J., passed assistant surgeon. Granted leave of absence for two months from July 1, 1907. May 25, 1907.

BURKHALTER, J. T., passed assistant surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Baltimore, Md., reporting to the medical officer in command for duty and assignment to quarters. May 28, 1907.

MCCOY, G. W., passed assistant surgeon. Directed to proceed to Bransford, and other places in Tennessee, for special temporary duty; upon completion of which to rejoin his station at the Hygienic Laboratory. May 25, 1907.

MULLAN, E. H., assistant surgeon. Granted leave of absence for two days from June 18. May 28, 1907.

OLSEN, E. T., assistant surgeon. Relieved from duty at Chicago, Ill., and directed to proceed to Ellis Island, N. Y., reporting to the chief medical officer for duty. May 25, 1907.

BAILEY, C. W., acting assistant surgeon. Granted extension of leave of absence for five days from May 27, 1907. May 25, 1907.

GLASCOCK, ALFRED, acting assistant surgeon. Granted extension of leave of absence for three days from May 29, 1907. May 25, 1907.

HUNTER, W. R., acting assistant surgeon. Granted leave of absence for two days from May 25, 1907. May 24, 1907.

OWEN, HENRY, acting assistant surgeon. Granted leave of absence for thirty days from June 1, 1907. May 27, 1907.

TARBELL, B. C., acting assistant surgeon. Granted leave of absence for ten days from April 15, 1907. May 27, 1907.

WATSON, H. J., acting assistant surgeon. Granted leave of absence for thirty days, on account of sickness, from Jan. 22, 1907. May 29, 1907.

WATSON, H. J., acting assistant surgeon. Granted leave of absence for thirty days from Feb. 21, 1907. May 29, 1907.

WRIGHT, F. T., acting assistant surgeon. Granted leave of absence for fifteen days from May 28, 1907, and excused for a further period of fifteen days without pay, from expiration of said leave. May 28, 1907.

BOARD CONVENED.

A board of medical officers was convened to meet at Vancouver, B. C., June 8, 1907, for the purpose of examining a person suspected of being afflicted with trachoma. Detail for the Board: Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon J. H. Oakley, and Passed Assistant Surgeon W. C. Billings, recorder. May 28, 1907.

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 8, 1907.

H. W. SMITH, assistant surgeon. Ordered to report to the Surgeon-General of the Navy, Navy Department, for special temporary duty.

F. E. CAMPBELL, passed assistant surgeon. Detached from the "Constellation" and ordered to the "Washington."

W. H. SHORT, assistant surgeon. Detached from the Naval Hospital, New York, N. Y., and ordered to the Naval Hospital, Philadelphia, Pa.

M. C. BAKER, acting assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the "Franklin."

R. B. CHAPMAN, assistant surgeon. Detached from the Naval Recruiting Station, Oklahoma City, O. T., June 27, and ordered home.

R. HAYDEN, assistant surgeon. Detached from the Naval Medical School Hospital, Washington, D. C., and ordered to the Naval Hospital, Annapolis, Md.

R. I. LONGABAUGH, assistant surgeon. Detached from the Naval Hospital, Annapolis, Md., and ordered to the Naval Hospital, Mare Island, Cal.

H. W. SMITH, assistant surgeon. Ordered to duty at the Naval Medical School Hospital, Washington, D. C.

APPOINTMENTS.

CLARENCE J. BLAKE, M.D., has been appointed Lecompte Professor of Otology in the Harvard Medical School.

H. A. CHRISTIAN, M.D., has been appointed Assistant Professor of the Theory and Practice of Medicine in the Harvard Medical School.

W. L. RICHARDSON, M.D., has been appointed Professor of Obstetrics Emeritus in the Harvard Medical School.

DR. WILLIAM SEAMAN BAINBRIDGE, of New York City, received the degree of Doctor of Science at the annual commencement of the Western University of Pennsylvania, June 7.

RECENT DEATH.

DR. VALENTINE MOTT FRANCIS, of Newport, R. I., died at the home of a relative at West Roxbury, Mass., on June 7, in the seventy-fourth year of his age. He was the son of a distinguished physician of New York, in which city he was born and educated. He was graduated from the medical department of the University of the City of New York in 1859, and practiced in New York for a number of years before removing to Newport.

BOOKS AND PAMPHLETS RECEIVED.

The Mastoid Blood-Clot Operation, Theoretically Good; What Results Will Show. By Henry Glover Langworthy, M.D. Reprint.

The Care of the Baby. A Manual for Mothers and Nurses. By J. P. Crozer Griffith, M.D. Fourth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1907.

JOHNS HOPKINS HOSPITAL JUN 25 1907 LIBRARY.

Original Articles.

ON MOUNTAIN-CLIMBING FOR PROFESSIONAL MEN.

BY CECIL KENT AUSTIN, M.D., PARIS, FRANCE.

"Every now and then a man's mind is stretched by a new idea or sensation, and never shrinks back to its former dimensions. After looking at the Alps, I felt that my mind had been stretched beyond the limits of its elasticity, and fitted so loosely on my old ideas of space that I had to spread these to fit it." — *The Autocrat.*

Our dear old friend, the Autocrat, wrote just a little too early in the century. He visited the Alps in the thirties, while evil spirits still guarded their virgin heights, and Scheuchzer's dragons had not yet ceased to flit about their cliffs; his book was published in the fifties, the dawn of mountain-climbing.

A great mind can generally be relied on to grasp situation, but only so far as the times admit. Thus in the quotation cited, and in other passages besides, the Autocrat clearly recognizes the possibilities of mountains; but he could not foresee the treasures of delight that the next few decades were to disclose among them. Observe that he says "after *looking* at the Alps"; what an interesting chapter would he not have written had he been privileged to really know them, to have felt at home up, in and among them.

Shall I say that it is such a chapter as this that I have now tried to write? The Autocrat would have looked on my attempt with an indulgent eye and feigned not to notice my presumption. Whether or not his readers and admirers will give evidence of an equally charitable turn of mind is, perhaps, another question.

Such articles as the one this purports to be have at different times been written for the English medical press by admirably qualified men. For it is noteworthy that the English physician was among the very earliest to realize the advantages of Alpine climbing for professional men and to go in for it; even to-day a goodly proportion of the English-speaking climbers in Switzerland is supplied by the medical corps. In fact, all of the early exploration in the Alps was done by Englishmen, — nor is this surprising. They have always been pioneers in matters of sport, and, besides, you can get to any part of Switzerland in less than twenty-four hours from London, good hotels abound there, and living is reasonable.

But in America very little seems to be known about mountaineering. Thus the illustrated magazines decline articles on the subject on the score of the small general interest it presents. True, the case is different in the United States from what it is in Europe; the nearest suitable range is the Rockies, three or four days distant; there is no organized system of hotels there yet, and no corps of experienced guides, — which makes it necessary for the climber to fit out an expedition for himself and to camp in the wild. This requires both time and money, so that it is perhaps not remarkable that so little has as yet been done by Americans in this line.

Unfortunately my knowledge of the apparently infinite climbing possibilities of our great Northwest is practically *nil*, and I shall consequently have to restrict myself to the Playground of Europe. As regards this region, however, I think I can claim to have had a certain degree of experience. For the past thirteen summers I have frequented the Alps, and throughout their western portion, from the Maritimes to the St. Gothard, I am familiar with the various centers and have done most of the good climbs.

Entering then into my subject without further preamble I will say that I look on mountain-climbing in the Alps as the perfection of a vacation for a professional man. "The usual exaggerated enthusiasm of the advocate of a given sport," will be the reply. No; I think that in the present instance this criticism cannot fairly be advanced. I am now well past the age of youthful exuberance, and have seen the great mountains from too near and read too much of Alpine literature not to be cognizant of the arguments there are to present for the contrary view of the case. Still, mere statement of opinion is no proof, and my proposition requires demonstration; so I will endeavor to acquit myself of the task in a manner creditable to this very fine sport.

It would not occur to any physician of experience to deny that in all our therapeutic armament there is any agent to compare in efficacy with *change*. Change, of every sort and applied in every possible manner, is the great remedy that the wise man seeks to advise whenever feasible; when he does not do so, it is generally because circumstances forbid, not through lack of belief on his part.

The extent to which we all stand in need of change can be only too easily demonstrated. We are most of us little better than tops, spinning about in circumscribed areas and by dint of our humming making more or less disturbance therein. It is perfectly appalling to note the depth of the mental ruts we get into, unless at periodic intervals there occurs some great upheaval in our existence to make clear to us the automatons we were becoming. We most of us spend our lives walking along looking at our toes and thinking; in parenthesis, one of the many merits of mountaineering is that it takes us where the foundation of all things is to hold up the head and look about.

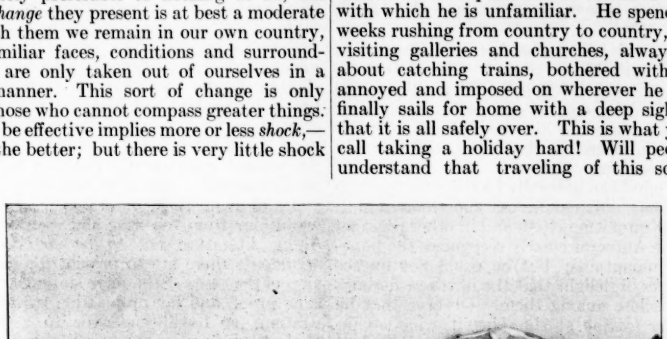
Change, then, being what we all so sorely need, and physicians applying this fact to their own case when they leave their practice and take a vacation, — in what manner can they use the remedy to a maximum advantage? For my part I am firmly convinced that in mountain-climbing and its accessory mode of life professional men will find a greater degree of *absolute change* than in any other known way.

For what are the different methods in which a physician can take a vacation? He will either go to the country or to the seaside; while there he will either go in for farming, gardening or other useful occupation, or, taking up some favorite sport, he will sail, row, fish, bicycle, ride, drive,

hunt, motor, golf, play tennis and so on. He may, if possessed of friends of means, go yachting, which Prof. Clifford Allbutt, of Cambridge, classes with mountaineering as "the two sports which above all others restore life and vigor to hard-worked men."

But the merest glance at these different pastimes shows that while all very well in their way, and infinitely preferable to nothing at all, the *degree of change* they present is at best a moderate one. With them we remain in our own country, among familiar faces, conditions and surroundings, and are only taken out of ourselves in a relative manner. This sort of change is only good for those who cannot compass greater things. Change to be effective implies more or less *shock*,— the more the better; but there is very little shock here.

summer. They do obtain a fair amount of change, that is evident; but traveling on the part of those not used to it is attended with so many offsets, that the balance of profit at the end of a trip to Europe is apt to be not very great. Such a man comes abroad in the heat, very likely accompanied by his family, and plunges into new scenes, struggles with strange customs and endeavors to express his emotions in languages with which he is unfamiliar. He spends his few weeks rushing from country to country, hurriedly visiting galleries and churches, always anxious about catching trains, bothered with luggage, annoyed and imposed on wherever he goes, and finally sails for home with a deep sigh of relief that it is all safely over. This is what you might call taking a holiday hard! Will people *never* understand that traveling of this sort is the



View from the Charpoua hut. Mont Blanc on the right. (Kind permission of Signor Guido Rey.)

Another serious criticism of these sorts of vacation is that many of them afford merely *automatic* exercise, that does not in the least turn the mind into new channels but allows it to flow on unimpeded in its usual grooves. A man fishing, riding, cycling, or rowing, for instance, does so *mechanically*, and in the meantime his unoccupied brain inevitably reverts to "shop," in which loom up prominently the worries that would have been best left behind in the city.

But, you will argue, a man can and often does travel; he goes abroad, and in this way will certainly get a thorough change. Yes, this is true; but the fact that has struck me more forcibly than any other, with my special opportunities for observation, is to note how little rest and amusement such travelers get out of their severest kind of mental wear and tear? Persons are often sent abroad for rest and change on medical advice, and this is the way in which they carry out their instructions! It is *common* to meet such travelers intending to do the entire western centre of Europe — France, Italy, Switzerland, Germany and England — in the course of a few weeks!

These being the usual ways in which professional men spend their vacations, let us see in what particulars a season's mountain-climbing surpasses them, — to such a degree as to render all comparison futile, — and whether it does not afford more change than can possibly be obtained in any other manner. The difference will be more readily perceived if the reader clearly understands what is implied by climbing in the Alps.

A man going to the Alps for a few weeks' climbing usually engages guides some months ahead; then, after laying in a supply of such articles of food as he has found best suited to digestion in high altitudes, he makes straight for some favorite center and settles down with his things about him. In this way he will be able to receive his mail regularly, be provided with occupation for off-days and spells of bad weather, and feel more or less at home and comfortable; he will also thereby eliminate the two great drawbacks to ordinary traveling: the being constantly hounded along from hotel to hotel like a Wandering Jew, and the exposure to heat. There are now, in all the chief Alpine districts, very fair hotels at altitudes of from 5,000 to 7,000 ft. At that height the temperature is always pleasant, however sultry may be the weather below; and any storm on the plain means snow up there, even during July and August. We will suppose our man to have designs on the Chamonix Aiguilles, and to have taken up his abode with old Simon at that pearl among mountaineering centers, the Montanvert.

Climbing the Alps has reached such a degree of organization, thanks to the efforts of the Alpine clubs of various nationalities, that most ascents can now be made under conditions of relative comfort. The "good old times," when climbers had to pass the night in the herdmen's sheds on the highest pastures, or in the open, under projecting ledges, at altitudes of 10,000 ft., with everything around them freezing hard, are fortunately things of the past. Warm and (all circumstances considered) fairly comfortable wooden huts have been constructed at distances of a few hours higher up than the hotels, for use as resting places the night before an ascent, and also as havens of refuge in stress of weather. A good idea of what is meant by climbing Aiguilles in the Mont Blanc range can be gathered from a brief description of the traverse of the Dru, one of the show feats of Chamonix.

A man bound for this peak will set out from the Montanvert at about 3 P.M. with two guides, outfitted with an extra rope and with provisions for twenty-four hours; and after a rough scramble of three hours across the glacier and up steep moraines he will reach the Charpoua Club hut. It is well to arrange to arrive at these huts in good season, so as to rest before the evening meal, and also to have leisure to thoroughly enjoy the sunset view. Alpine scenery shows to the greatest advantage either early in the morning or at sunset; during the heat of the day the glare and haze make things very indistinct. In the present instance the view up the long glacier valley to Mont Blanc, with the line of Aiguilles on either hand, all lighted up by the wonderful pink and salmon tints of the setting sun, is as fine a thing as can be seen anywhere in the Alps; it is worth the trip to the Charpoua, only to see this view and return the following morning. Many of these club huts have been placed in the most stupendous sites, that on the Italian side of the Matterhorn deserving special mention on account of its wild, fantastic position and great height, nearly 13,000 ft.

After a brief meal, cooked by the guides with wood which they have had to carry up from the Montanvert where the tree-belt finishes, the climbing parties, of whom there may be two or three, bound for different peaks, lie down on the sleeping shelves for a few hours' rest; and by 8 P.M., broad daylight still, all is quiet.

To sleep at such a height is not easy, particularly when discomfort and excitement are added to the rarefaction of the air; but still, a certain amount of physical rest is obtained by assuming the recumbent position. Heart action is liable to be accelerated for the first hour or two, but finally quiets down; at the Sella hut on the



The Matterhorn hut, Italian side.

south side of the Lyskamm, at 12,000 ft., I noticed during the night that the mere effort of turning the body on the shelf from one side to the other induced very distinct panting.

Toward midnight the guides begin striking matches to look at the time, and by 1 A.M. everybody is up, preparing tea, which, well sugared and with bread and jam, composes the first meal of the day. On the up-climb it is difficult to eat solid food or much at a time; little and often is the secret, and only muscle fuel, not albuminoids. Personally I go best on the very hard part of climbs on sugar-water, twenty lumps of cut sugar to the liter; it is surprising the way this drink

will pick you up when tired; actual tissue restoration can be attended to on reaching the hotel again. Half an hour later everybody is off, and during the next few hours they witness another alpine wonder, the insensible transition from black, sparkling night to the splendors of an Alpine morning.

At first you trudge along mechanically, keeping a sleepy eye on the heels of your next-ahead, just visible against the glacier. The leader steadily scratches steps in the hard snow with his ax and the monotony of the rhythmical strokes lulls your senses. At regular intervals, so many times per minute, you raise your body-weight twelve



Chamonix Aiguilles. The battlement ridge in the foreground is the Grépon. On the skyline the snow tipped peak in the centre is the Verte, to the reader's left of which is the Dru. (Kind permission of Sydney Spencer, Esq.)

or fifteen inches. You can see nothing around you, of course, and this part of the trip has undoubted analogies with the tread-mill.

By dawn you are at the top of the glacier and at the foot of the granite wall of the Dru, about as perpendicular as anything can be and not topple over; and now for a very different kind of exercise. Everything is silent, no water is trickling yet; the rocks are icy and glazed, as we are on the west or cold side of the mountain. Up the party goes, one at a time, slowly but steadily, progress being measured by comparison with neighboring peaks, as you cannot see anything of your own. The leader squirms and wriggles his way up a fissure in the rock, the other men waiting below; he will go as far as his fifty feet of rope allow him, and then anchor himself solidly while No. 2 struggles up, less gracefully, as he is weighted with the sack. He in turn fixes himself and then *you* go at it, to be received at the top with a derisive snort owing to your all-round awkwardness. And so on it goes, over and over again, following successive cracks and breaks in the rock right up the face, until you begin to feel as though there were simply no end to that wall. At any moment a biscuit could be tossed down to the point from which you started, so steep is this mountain. But after about three hours of this sort of work you have a feeling that you are gradually "coming to things"; your surroundings grow lighter, and there seems to be less rock



The Dru (north face).

piled up above you. And finally, all of a sudden, there you are, the summit, and best of all the warm sun, in whose welcome rays you sit down to breathe and rest, rather pleased with your person, while the guides unpack the bag and sample old Simon's sour wine. Five hours and ten minutes from the hut without a halt; not so bad, — the leader seems almost cheerful when you tell him.

But five minutes are certain not to elapse before two small shadows will float noiselessly

over the rocks. There will be a soft rustle of feathers somewhere in the immense stillness above you:

> . . . τί ποτ' αὖ κινάθισμα κλύω
> τέλας οἰωνῶν; αἰθὴρ δ' ἐλαφραῖς
> πτερύγων ῥιπαῖς ὑποσυρίζει.
>
> [*Æschylus, "Prometheus."*

and finally with triumphant caws, a sort of "here we are again," two little black choughs will pounce down on a neighboring rock and fall to eying your food. Fine little chaps they are, with glossy black plumage, daintily fringed wings, yellow beak and red legs, — a very smart get-up. You always meet them on climbs, where they live off of your meal scraps. But time presses and you must soon be moving again. Your next step is to get over the deep gap between the summits of the big and little Dru.

To seekers after the sensational I would suggest the take-off from the big Dru. After squeezing down a steep iced crevice between two big bowlders you come to a small ledge below which the drop is practically vertical for many hundred feet. Strange as it may seem, vertical cliffs are not so very common in the Alps; but there is no mistake about this one. You are here told to back off over this ledge, swarm down as best you can for a short distance, and then work across to your right out of sight, until you reach a point at which your way becomes evident, down into the gap. After you have accomplished all this it proves less dreadful than it appeared on looking down at it; but *ex-post-facto* knowledge is unfortunately of no help to you in making the start. A feature that concurs in rendering this step particularly moving is that the climber has to go first, the guides remaining above to manage the ropes. As you crane your neck over the edge you cannot see where you are to go nor how you are to work it, and I frankly confess that the great hereafter never seemed more proximate than when I dangled off that ledge on two ropes. There is in Alpine climbing not so much of the really sensational as is imagined; but this take-off can be fairly entered under that heading.

An hour and a half later you have crossed the gap and reached the summit of the little Dru. You are now right opposite the Montanvert; friends descry you through the glass, and heliograph congratulations with a mirror. All about you, as far as the eye can reach in every direction, the peaks of the Alps, ice and rock, rise in orderly disorder like the billows of a wildly tossing ocean suddenly frozen into immobility; above you, the indigo sky is cloudless, and the entire prospect before you is bathed in light, light, light, — such light as no one can conceive of who has not himself witnessed the bewildering illumination of an Alpine day at that height. For the light comes not only from above, but from below and all sides as well, where it is reflected from snow-field and glacier and broken up and bandied about until everything seems fairly quivering with the intensity of the ether vibrations. Ah, my brethren, believe me it is worth discomfort, toil and risk to stand and witness such a scene as this, and, perched on this almost inaccessible fastness of Nature, surrounded by primeval rock and ice alone, to breath for at least one brief period an atmosphere unsullied with dust, morbid germs, smells and miasmas.

But you have yet to get back home, a livelier scramble still down the sides of the Little Dru, where the fissures in the granite are longer and distinctly less practicable even than those by which the ascent was effected. The guide slips the middle of the spare rope over some projection, throws the two ends down the cliff, and with an "Allez, Monsieur," over you swarm, time and again, for hours in succession; this descent will in every probability abide in your memory as the liveliest preformance of your entire existence. Finally, easier rocks are reached, where the four extremities suffice, without the spare rope; then the glacier once more; and at last, at about five, you are safely back at the hut, and you arrive at the hotel by seven thirty, eighteen hours out.

But pray do not infer that all climbing is like this! As I said above, the Dru traverse is a *tour de force*, the most difficult thing most climbers attempt in the Alps. On an ordinary ascent there is none of this spare-rope work, or dangling over precipices like a cork on a thread; you keep on all-fours and enjoy yourself.

Resuming our interrupted argument once more at this point, I shall now have less difficulty, probably, in obtaining acquiescence to the claim that if the proper basis of a professional man's holiday is change, in no way can this be so satisfactorily procured as by a season's climbing. In time of good weather at the Montanvert an active man in fit condition will put in three big climbs a week, or, may be, four smaller ones. Now a mere glance shows that a life of this sort contains novelty in its every condition: Europe, high altitude, fresh surroundings and occupations, and an entirely new set of associates of various nationalities. If that is not change, then, pray, what is?

The invigorating action of life at such a height (the Montanvert is about 6,300 ft. above the sea) is universally understood; but when it is combined with frequent trips to twice that altitude and more, the result is very similar to putting forced draught on to a fire that is already bright and clear. Furthermore, bear in mind that the muscles perform this enormous amount of work on a scanty food-supply. This means that these climbs gradually burn up every atom of refuse, every degenerate cell in the entire body. No weakling cell has a chance of surviving such physiological cyclones as the ascent of big mountains. Men lose flesh quickly when they reach the Alps, but this is an excellent thing; for it is the mere rubbish that disappears, while what remains is the proper article, which gradually becomes so hard that by the end of a season a quadriceps femoris could almost serve as an anvil. This extraordinary increase in the circulation through all the organs must also undoubtedly

open up anew quantities of capillaries that are either not used at all under ordinary circumstances or have become obstructed and are preparing the way for diseased conditions.

In my own case the result of a season's climbing is about as follows: Towards the end of each year's work, June and July, my energy of attention falls to a minimum and there would then be no use in my attempting any serious work either in the line of reading or writing. Ten months of unbroken routine produce a condition of mental staleness that is very much to be deplored. A few weeks' exercise in the Alps, however, changes all this completely. I return to town not only feeling but looking years younger. Mental concentration, so far from being an effort, is a pleasure, ideation is active and satisfactory, and my views as to men and things have again become supra-diaphragmatic, whereas before the trip they were what might have been called decidedly abdominal. An English physician of distinction, Sir Hermann Weber, himself formerly a climber, holds that so extraordinary is the tonic effect of a season's mountaineering that he has seen a man's hair that had begun to turn gray be brought back to its proper color at the end of such a course. Truth compels me to state that although I have tried this means of treatment with more than perseverance for many years, I have been unable to observe any retrogradation of the relentless progress of capillary canescence in my own case!

We saw above that a large number of sports fail to furnish sufficient occupation for the mind, which continues to work in its usual grooves, many of them distinctly undesirable. But I will ask you to take my word for it that in rock climbing there is nothing of that sort; this is a sport that is anything but automatic, ideas flowing most vigorously along new and very important lines, those of seeking to preserve the anatomy from sudden and violent dissolution, one moment's inattention being sufficient to wreck an entire party. On difficult rocks absorption in the work in hand is so intense that everything else ceases to exist. You have to watch very closely just where the man who precedes you puts his hands and feet. On the way up some passage he may tap a piece of rock and tell you that it is unsafe; this you must make a careful note of, as one of the really serious dangers in climbing is the sudden giving way of a piece of rock to which the weight of the body has been trusted. You have constantly to follow the movements of the rest of the party and be prepared to start the moment your turn comes, your hand-holds all mentally arranged in advance so as not to lose time. You have to see that the rope does not catch and give the man in motion a violent jerk or bring things down on your head. In extra steep passages you have to shelter on one side, whenever possible to get out of the line of fire, and keep a very watchful eye aloft, since so inoffensive a thing as a mere chip of ice, if coming from sufficiently far above, may give you a very severe blow on head or arm, *a fortiori* anything in the way of a stone. If you are in the middle of the rope you have to draw it in as the man below ascends and never be off your guard one instant, as you never know when the awful moment may come when he will have to be held; such emergencies are not frequent, but they do occur, and woe betide the man taken unawares. These details will suffice to show how little of the mechanical there is about mountaineering.

The effect of setting altogether aside the professional mind, of putting it out to grass, so to speak, and of using in its place a set of faculties entirely new even though of a more everyday order, is wonderfully resting, especially when they have to work as actively as does the sense of preservation on a mountainside. And there is still another aspect to this question: the possibility in the mountains of pursuing off-days and in uncertain weather some out-of-door hobby, which, if a man be wise, he will have cultivated assiduously beforehand, — photography, entomology, geology (with fossils, crystals, etc.), and the whole glacier question, a most fascinating study, in which can be lived over again the emotions and delights of de Saussure, Agassiz, Desor, Forbes, Ruskin, Huxley and Tyndall.

Perhaps the most attractive side of climbing in the Alps to some people is the class of men with whom it brings them in contact, and the charming friendships that thence arise. The most interesting acquaintances I have ever made have been in these remote and often unknown little centers. For it is a very remarkable fact that, at least among English-speaking people, the class that mountain-climbing appeals to is that of the brain-workers; and they come from every profession, the intellectual *élite*, the men who know things and do things: professors at the great universities, littérateurs, the clergy, bishops, officers in the army, scientists, of course, of every category, physicians, barristers and judges. The merely blatant rich, on the other hand, are conspicuous by their almost total absence, nor is this perhaps the least of the sport's titles to preeminence; explain this peculiarity who can, I have no solution to offer; perhaps the opportunities for throwing money around are inadequate! If I had to single out one argument to substantiate the claim that mountaineering is the finest of all sports, I should be quite satisfied with the following: look at the kind of men to whom it appeals; take the list of the members of the English Alpine Club, past and present, and examine it carefully. The attraction that mountain-climbing has for brain-tissue of the very finest texture is, however, a phenomenon for which an entirely satisfying explanation has yet, I believe, to be given.

A curious feature about this "high life" is the almost absolute immunity to disease that reigns there. It seems impossible, for instance, to catch cold on these climbs, no matter what the exposure may be or what follies may be committed voluntarily or involuntarily. Starting for the Dent Blanche one afternoon we were caught while crossing the glacier by a furious storm;

we lay in our wet clothes, just as we were, all night under a rock, with little rills trickling down on us, and at dawn were driven back home by more bad weather — and no one of us even sneezed. I have known Englishmen, with centuries of port-drinking ancestors back of them, to do precisely the same thing, — without a twinge of gout or rheumatism ensuing. It is amazing, and brings to mind the experience of Nansen's party, who never had a cold in the Arctic circle, but who all began to cough and blow their noses as soon as they regained the coast of Scandinavia.

Leaving, now, the argumentative for the more practical aspects of this subject, let us inquire who the persons are to whom this sport is adapted.

Not to every one, manifestly. That the climber's viscera must be sound is self-evident; a tubercular lung, inadequate heart, damaged kidney or bad brain-vessel would soon get its bearer into difficulties if it did not precipitate a catastrophe, at such work as this, in which not only is a great strain thrown on all the organs but there always exists the possibility of dangerous exposure through being benighted high up in the cold, or by the sudden advent of a storm.

Again, while mountain-climbing in its severest forms is clearly an occupation suited to life's palmy days, twenty-five to forty, it need by no means be restricted to this halcyon period alone. A person of over forty taking up the sport for the first time will do well to moderate his ambition, go slowly on the ascent and avoid employing young guides. But even with these limitations he will still find ample to occupy the remainder of his active days, and by pursuing the pastime in a reasonable manner will derive from it nothing but benefit to both body and mind. But a man who began mountaineering young, whose viscera have shown their ability to stand the strain and whose arteries retain their elasticity, can keep it up to a ripe old age, gradually diminishing the severity and duration of his climbs as the years accumulate.

Noblesse oblige, and in youth's exuberant days severe trials of endurance present a fascination so great that there is no refraining from them; but little by little, and by the sole process of time, climbers from having been "peakers," become "passers." If the truth were only acknowledged, the greatest joys in the mountains are these easy trips, the "pottering" days, when a man is not rushed, has a decent night's sleep behind him and the comforting prospect of a good *table d'hote* in the evening. These are the occasions when he tries his own little efforts as leader, after filling the guide's pipe and relegating him to the rear to jaw with some other *confrère* in their atrocious patois; finding a way unaided up the ice-fall of a glacier, with perhaps the cutting of a hundred steps in hard ice through having taken a bad course, is productive of much experience, and at the same time awakens a fuller realization of the magnitude of the work guides occasionally perform when, on an ice tour, they for hours at a time cut steps of such size that their Herr can comfortably stand in them with both feet.

It is not unusual to meet in the Alps old white-haired Englishmen knocking about over cols and doing easy climbs with guides of the same age as themselves and young porters to carry the sack. These men are often well over sixty, but the sacred fire still burns brightly; they will sometimes have been in the mountains with one particular guide for twenty, thirty or even more consecutive seasons. I well remember once finding such a party lunching at the foot of the Géant ice-fall. The guide was sixty-five; the gentleman, who was sixty-four, had been a climber in his younger days, but had then ceased coming to the Alps for a number of years. Finally, his health appearing unsatisfactory, his physician advised Wiesbaden "to get your skin into better working order." "O," replied this choleric old party, "you want me to sweat, do you? I know how to accomplish that all right: I'll go back to the Alps. Wiesbaden be d——d!" And sure enough, back he came, hunted up his old



Summit of the Grépon.

guide and resumed his annual jaunts, which he had now been pursuing anew for seven summers. Still, as a man gets on in years it is a wise precaution to have the thorax examined by x-rays each season before starting; any calcification or distention of the aorta would be a formal counter-indication to this sort of work. The best per-

formance I have yet heard of in the way of age was the Grépon at fifty-eight, by an Englishman who during the remainder of the year leads an active out-of-door life in the country, shooting and riding to hounds. This is a truly remarkable feat.

Climbing is as a general thing to be discouraged in youths. At that time of life ambition is under such imperfect control as to be liable to carry them far beyond their not yet fully developed physical powers. If they can be restricted to reasonable efforts, and handicapped by old and prudent guides, permission might be accorded; but even then there is always the risk of the exposure from being benighted on a mountainside. Some terrible catastrophes have been caused in the Alps by the inability of an unseasoned physique to withstand even moderate exposure when exhausted and discouraged.

Finally comes the mooted question whether women should climb. Every one knows that there both are and have been remarkable lady-climbers. But setting aside these exceptional instances women will do well to keep away from all long and heavy work for the following reasons, in regard to which they are badly handicapped when compared with men:

1. In this as in all sports women labor under the disadvantage of going with men. If parties could consist of women only, as well guides as climbers, the situation would be different; but when a woman climbs with a party of men, even though the latter try to bring themselves down to the level of her physical powers, she is still pretty certain to overdo herself.

2. While many women's walking powers are good they all necessarily fall short in arm and shoulder work, and on steep rocks there is any amount of this. If you lift an average woman up to a horizontal bar, let her take hold, and then ask her to try and pull up her weight, you will, I think, find that she cannot do so one particle, not a fraction of an inch. I fancy also that there are very few women who can lower their weight down a rope, — not to speak of working up one. This weakness of the upper extremities constitutes a serious drawback in stiff climbing, as it necessitates their being pulled by the rope up many places where men would experience little trouble; and for obvious reasons a tight rope tugging heavily around a woman's thorax is not a desideratum.

Lastly, women, who can sometimes do marvelous things on their nerve force, seem to have a distinct and clearly defined limit to their physical strength; when this limit is reached there appears to be no reserve whatever behind it, but they give out suddenly, altogether and for good. A man now and then becomes exhausted on a mountain; but if his guides know their business, refrain from stimulants, rest and feed him, or even give him half an hour's sleep, he will most likely react and be good for several additional hours. This absence of reserve power in women may become a grave matter on a really big climb. Thus, there arise emergencies in which a party has to make a sudden and tremendous effort whereon a great deal depends. It may be imperative, for instance, to get off the rocks before darkness comes down, the penalty being to remain motionless all night in a freezing wind at the spot where it became no longer possible to see. Or sudden bad weather not infrequently envelops a party, who either have to hustle off their peak at the double, or risk being struck by lightning or finding rocks that were passed without difficulty in half an hour on the ascent, glazed with ice and frightfully dangerous on the descent, requiring hours to pass over. It is not easy to demand such an effort as this from a woman, whose physical limitations may then put the entire party's life in jeopardy.

Let me suggest to married men going to the Alps for a season's climbing not to take their wives with them. In the first place they are apt to put in the time, while their husbands are off on a mountain, panicking around the hotel in a condition of such visible mental anguish as to be depressing to the other inmates; and in the second, they have a special weakness for organizing rescue parties every time the dear one is a few hours later home than was expected. Now nothing makes a man who has whiled away too much time smoking his pipe on a mountain top look so cheap as to be met by a valiant rescue party half a mile from the hotel! Besides, that sort of thing comes expensive, every idle guide in the community jumps at a rescue party, and all expect to be handsomely remunerated whether they rescue anything or not. I shall never forget the suppressed fury of one first-rate climber who was triumphantly brought in to the hotel by the rescue party which his loving spouse had promptly and energetically despatched after him because he had become benighted on a perfectly safe mountain in heavenly weather. There was a coolth in their bearing toward each other, for several days after, that was very painful to onlookers.

These remarks on mountaineering — although already unduly protracted, I fear — can be fittingly closed perhaps by a few practical suggestions, in case some reader may have been roused, through what has been said above, to wish to try climbing in the Alps for himself.

Climbing season. — This begins in the early part of July, and may last from six to ten weeks, according to the weather. In some years the really big climbs cannot be thought of, so unfavorable are the atmospheric conditions; thus there occurred recently a series of seven consecutive seasons during which the Zmutt ridge of the Matterhorn was not even attempted.

Climbing centers. — Zermatt, to my thinking, possesses the finest individual mountains; Chamonix, the most difficult and sensational rock-climbing; Grindelwald, the ascents most suitable for a beginner. But Zermatt has been utterly ruined by its great popularity, and is now little better than a den of thieves where the visitor is swindled at every turn. All *débutant* climbers aspire to Zermatt and the Matterhorn. But this

mountain is no longer the peak it once was; the ordinary Swiss ascent is now so crowded on a fine day that a regular trail has been worn up the rocks by the scratching of the trippers' bootnails. Forty or fifty men, not counting the women and little children, as Rabelais says, foregather at a time on its summit in good weather! The opinion held among real climbers as regards this fashionable scramble can be surmised from the following, written to me not long ago by a member of the Alpine Club: "I feel that I must go to Zermatt once and do the Matterhorn; I suppose that by going up by the Zmutt ridge and down by the Italian side, I shall be able to avoid the *worst of the crush!*"

The Matterhorn is unquestionably a fine mountain, and well worth doing; but when you go to this region do the climb from Breuil, on the Italian side, and give Zermatt as wide a berth as possible.

Grindelwald is a picturesque and characteristic Swiss commune, unspoiled and with good guides; but at the height of the season the mountain huts there are apt to be crowded with Swiss and German students, attracted by the cheap mode of life and by the relative easiness and great beauty of the Oberland climbs, which they undertake in parties by themselves unaccompanied by guides. It is these venturesome youths who, together with that candid specimen of humanity, the clamberer after edelweiss, make up the nineteen twentieths of the Alpine accidents that are reported each year in the daily press.

Of the three centers mentioned, greater satisfaction will be derived, I feel sure, from the Montanvert than from either of the other two.

And now, *two pieces of advice*, of the first importance: it is impossible to take too much care in your outfit as to clothes, mittens, boots, goggles, rope, ax, etc., and the necessary information *ad hoc* can be obtained, with addresses, from the books mentioned below. A man improperly clothed may lose his fingers and toes from frostbite, or even freeze to death; a bad rope may give way in a sudden emergency; a climber has fallen and been dashed to pieces through the heel of his boot coming off, — and so on; instances of the paramount importance of care in these particulars are too numerous to mention.

Secondly: no precautions are too great in selecting guides. *Never* take a man who accosts you on the street, or who is recommended by any one at the hotel, from proprietor down, or, in fact, by any native of the place; the local peasants have always a necessitous relative who would be glad of a job, and all they think of is to do him a good turn, irrespective of his suitability for the undertaking. In my early days I found once after doing the Dom that the porter we had had with us was a cousin of the guide's and had never been on a big mountain in his life! At each climbing center there is one hotel frequented by the members of the English Alpine Club; go to it, make friends with these men, and get your tips from them: the Bear, at Grindelwald; Couttet's and the Montanvert, at Chamonix; the Mont Rose, at Zermatt. Between the merits of different guides there is an abyss, and you cannot be too closely on your guard. There are only a few first-class guides in the Alps; the besetting sin of the genus guide is drink.

The danger side of climbing can only be summarily referred to in this article. A party with proper physique, suitably outfitted and with good guides rarely gets into trouble. Such a party ought not to slip, get kept out by bad weather, be carried away by falls of stones or ice, or disappear into crevasses; but it is useless to deny that a certain element of risk does exist in mountain-climbing, even for parties that seem beyond criticism. These risks are: the sudden advent of a storm, before the party can shelter or get off the mountain; lightning; falling stones, and the unexpected giving way of a foot- or handhold on which a climber is relying. But fortunately, in spite of these unavoidable dangers, accidents among good climbing parties are the great exception. The annual death-rate is almost entirely made up of the inexperienced and rash parties referred to a few moments ago.

Books on the subject. — Mountain-climbing is a much more important sport than people imagine; thus the Austro-German Alpine Club has a membership of over 60,000. It naturally follows that the literature on the subject is very extensive; but I shall here mention only a few books of general information, through which any one so desiring can gain access to the others.

1. "Mountaineering." Claude Wilson, M.D.
2. "Mountaineering." The Badminton Library.
3. "Equipment for Mountaineers." Alpine Club.
4. "Ball's Western Alps." Alpine Club edition.
5. "Hints and Notes for Travellers in the Alps." A general introduction to No. 4, but published separately.
6. "The Training of Mountaineers." Prof. Clifford Allbutt, in "Pioneers of the Alps," by Cunningham and Abney.
7. "In den Hochalpen." Dr. Paul Güssfeldt.

No. 1 contains in a very concise form a great deal of valuable information, including a list of addresses for equipment and supplies. No. 4 is indispensable. No. 5 is very interesting indeed, containing among other things an excellent catalogue of mountain literature in all languages. No. 7 is highly recommended to those familiar with German, its supplement, fifty pages of generalities on mountaineering, being one of the best monographs on that subject. This book contains, besides, the most graphic description of a climb that I have ever encountered in a fairly extensive perusal of Alpine literature, Gussfeldt's account of that mad performance, his descent with Alexander Burgener from the Col du Lion on the north side. Being a German, Gussfeldt could naturally only take his sport seriously; so he has gone into physics and mechanics of climbing in a sober and scientific

manner, talking about centers of gravity, bringing in trigonometry, and awakening such hoary remembrances as sines, cosines, and angles of inclination! Fancy the reception you would get were you to shout to your breathless guide, whose leather-patched seat and frantically gesticulating legs you just descry above you as with painful wriggling he is slowly drawing himself up over some projecting ledge, to inquire how the cosine of his inclination was getting on! My word! you *would* have the gospel of truth expounded to you that time, if never before!

It is quite possible for a city professional man to keep himself in such condition during the working months that with one week of preliminaries after his arrival in the Alps he will be able to undertake anything in reason. This can be accomplished by leading a regular life, by practicing Swedish setting-up movements every morning (for which no apparatus whatever is required), and by putting in as much walking exercise as possible. On the street a man should keep his spine erect, chin in and chest out, breathe deeply, make it a point at certain intervals first to empty the lungs and then to fill them up to their maximum, and proceed on his way with the vigorous and decided gait of the person who has somewhere to get to, and not with the listless loll of the valetudinarian killing time or taking a half hour's constitutional by doctor's orders.

Sir Hermann Weber has published an interesting little book entitled: "On means for the prolongation of life," and in it he bestows an important mention on mountain-climbing. He also lays much stress therein on the desirability of cultivating everything likely to develop willpower, decision of character and fixity of purpose. Now few things will be found to do this with such efficacy as frequentation of the Alps.

To a young man, full of vigor and keen on the sport, the difficulties and hardships of mountaineering are perhaps not very formidable, and make no very great calls on the qualities just mentioned. But with the man of fifty the case is considerably different, and at that age it requires no moderate degree of determination to lie down to rest at 7 P.M., in broad daylight and on top of a brief supper, be called at eleven, get under way before midnight, stumble along steep paths and the crests of moraines by lantern for four hours before dawn, and then to spend the entire day making some long and tedious traverse from one district to another across a difficult mountain, with a storm or two interspersed, reaching an inn at nine or ten in the evening, perhaps to find every bed occupied and have to sleep on the parlor chairs in dirty climbing outfit, — when not forced to halt for the night at the upper cattle-sheds through having lost time in taking a bad direction! This sort of thing can be recommended in all security as the very best of discipline for will, temper and general saintliness of disposition.

Doing the Weisshorn once, in bad condition, under the leadership of the guide whose photograph accompanies this article, and the determination of whose character can be estimated from the cut of his lower maxilla, we reached, after a toilsome ascent of nine hours, the final stretch on the north ridge that leads in thirty minutes to the summit. But whereas everything on the slopes below had been perfectly quiet, at this point we suddenly found ourselves exposed to the full brunt of an icy wind from the west that was surging up over the crest with such force and velocity that in a few moments I felt that my vitality was rapidly disappearing; I therefore shouted to the leader that I was afraid "it wouldn't go." "*Nä*," "*Nä, Herr*," came back to me through the Arctic blast, "*es muss gehen*," — and go it had to! Truly this is a most excellent school for the training of the will.

In short, the great thing in this world is to lead the strenuous life, — the supposed parent of which term I here brand as a plagiarist, — it appears in the "Autocrat." This, I think, can be accomplished to better purpose in the mountains than elsewhere; but the essential point is to take heed that it be accomplished, whatever the means employed. By so doing, the vessels of the body will remain elastic and the visceral capillaries permeable, — the secret of perennial vigor; this in turn will lead, not to mere old age, which would be no gain, but to a *useful* old age, — an entirely different matter.



A representative Swiss guide.

FLUSHING THE INTESTINAL CANAL THROUGH MULTIPLE ENTEROTOMY OPENINGS.

WITH THE REPORT OF ONE CASE.

BY GEORGE H. MONKS, BOSTON,

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STARTING with the assumption that patients with acute peritonitis frequently die from the absorption of septic products from the intestinal canal, as well as from the peritoneal cavity, I carried out at the Harvard Medical School, during the winter of 1906–1907, a series of experiments on cadavers and on animals for the purpose of determining whether the intestinal canal could be cleansed by flushing through multiple enterotomy openings, and whether, if so, it could probably be done without any great degree of danger to the patient.[1]

As a result of these experiments (which will be published later) I came to the conclusion that to flush the intestinal canal of a patient suffering with acute intestinal toxemia, whether or not peritonitis was also present, was a perfectly practicable procedure, and that, in certain cases after the simpler methods of treatment had been used without result, that it was thoroughly justifiable. It also seemed obvious to me that the removal of the intestinal contents by flushing with warm salt solution would be of great advantage to such a patient, especially for the following reasons: first, because it would remove an active source of septic infection; secondly, because it would place within the intestinal canal a large quantity of salt solution where it could be readily absorbed into the circulatory system; thirdly, because the warm solution would re-enforce the bodily heat, the whole intestinal canal being thus converted into a long tortuous hot-water heater within the abdomen. For these reasons I felt willing to carry out this procedure on a patient, provided the conditions which the patient presented seemed to me to justify it.

Finally, a case, in which the treatment outlined above seemed particularly applicable, entered my service at the Boston City Hospital.

HISTORY OF THE CASE.

The patient was a little girl, eight years old, with acute general peritonitis which, by culture, was later found to be a pure streptococcus infection. The condition of this little patient when I first saw her was deplorable. The face was pale, and the features drawn and sunken. The skin was cold and "clammy," and was here and there covered with perspiration. The pupils were dilated. The respirations were shallow, and the pulse "thready" and scarcely perceptible. It registered 180 beats to the minute. In short, the patient presented the appearance of one about to die. The tongue was covered with a thick, dry, brown coat, the lips were parched, and the patient articulated only with great difficulty. There was general tympanites and general tenderness, and there was a board-like spasm of all the abdominal muscles. A high turpentine enema, that had been given without result, had been expelled.

The child was evidently dying of sepsis. I determined, therefore, to open the abdomen, clean the peritoneal cavity, and, if I then thought it best, to flush the intestine also, for it seemed to me probable that the retained intestinal contents were furnishing a large proportion of the general sepsis that was killing the patient.

The essential details of the operation and of the subsequent history of the case are as follows:

Ether. Median incision below umbilicus. Abdomen opened. Intestines slightly reddened and free, pus everywhere. Culture taken. Many thick, yellowish flakes of fibrin adherent to intestinal coils. Abdomen rapidly explored. No obvious cause of peritonitis found. Appendix slightly swollen and vessels injected. Removed. Peritoneal cavity thoroughly irrigated through long glass tube.

Numerous coils of much distended small intestine were brought into the wound.

An incision was then made into the gut at the point estimated to be high up, *i. e.*, near the duodenum. The incision was in the free border of the intestine, and parallel with its axis. Much gas escaped. A glass tube was then introduced into this opening with its tip directed downward, a gauze pad pressed about the intestine at this point held the tube in place and prevented leakage. The coils outside of the abdomen were gradually distended with hot salt solution, then a second incision was made in the lowest intestinal loop presenting in the wound. It was roughly estimated that the length of the intestine between these two wounds was 2 to 3 feet. Much gas and foul-smelling intestinal contents escaped from the lower wound, and finally the wash water came out clear. The upper wound was now sewed up with Pagenstecher thread (Cushing right-angled suture) and from the lower wound the rest of the intestinal canal was flushed, a large amount of fluid being introduced. The lower intestinal wound was then sewed up, the peritoneal cavity again irrigated, and the abdominal wound closed except at its lowest extremity where a small cigarette drain had previously been inserted into the pelvis. It is hardly necessary to add that during the flushing the greatest care was taken to avoid contamination of the peritoneum by the intestinal contents. The enterotomy openings were drawn well away from the wound, and carefully packed about with gauze. After the dressing had been placed on the abdominal wound a rectal tube was introduced, and a large quantity (nearly one quart and a half) of intestinal contents with salt solution came away. Finally, the fluid escaping from the tube became quite clear.

During the intestinal flushing the etherizer who could not see what was being done called the attention of the operator to the fact that the pulse of the patient had become conspicuously stronger and its rate dropped to 140. This condition of the pulse persisted throughout the operation. While the dressing was being applied $\frac{1}{12}$ gr. of morphine and $\frac{1}{150}$ gr. of atropin was administered subcutaneously. No "shock enema" was given.

Good ether recovery. Toward evening the patient became somewhat restless, and another $\frac{1}{12}$ gr. of morphine was given. About midnight the rectal tube was introduced without result. The patient was given saline solution by rectum, one pint every four hours; and it was well retained. Water and cracked ice were given by the mouth, but as they were vomited, no further attempt was made to give anything in this way. At six o'clock on the morning after operation a nutrient enema was given and retained. Temperature at this

[1] I wish to express my thanks to Dr. W. E. Faulkner for his valuable assistance during these experiments, and to Profs. W. T. Porter and W. B. Cannon, who, for the animal experiments, kindly placed the laboratory facilities at my disposal.

time was subnormal, and the pulse was 140 and of fair quality. There was considerable vomiting. Nutrient enemas were given from time to time, and for the most part they were retained. From this time on, for the next three or four days, the patient was given nothing by mouth, and was nourished entirely by rectum. Occasionally a cleansing enema was given, with fair result. On the fourth day albumin water and brandy in water were given in small quantities by the mouth.

The general condition gradually improved. The abdomen was not distended, and the abdominal spasm lessened. From this time on the condition of the patient showed progressive improvement from day to day. The vomiting ceased entirely. The patient was able to take more food by the mouth, and her general appearance became greatly improved. The tongue still remained dry and parched. There was a moderate purulent discharge from the drainage wound, which was flushed daily.

The remaining history of the case is uneventful, for the patient's condition became better each day until she was out of danger. The record made on the twentieth day after the operation showed the temperature normal, the pulse 112, and of good quality. The patient was taking a liberal diet of soft solids and eggs, and the bowels moved occasionally without enemas. She was gaining rapidly in strength. On the thirty-first day after the operation she was up and about the ward, and on the thirty-sixth day she was discharged from the hospital in excellent condition, there being only a small granulating surface at the lower end of the abdominal scar.

REMARKS.

It is obviously impossible to state with any degree of certainty that the recovery of this patient was due to the flushing of the intestine, but, judging from my experience in "forlorn hope" cases of general peritonitis, I find it hard to escape the conviction that the flushing did accomplish that happy result. The removal of a large amount of liquid feces and gas from the lower part of the small intestine and the colon must have greatly diminished the absorption of septic products, while the introduction of a large quantity of warm salt solution must have rapidly increased the amount of fluid in the vascular system, and favorably influenced the body temperature.

The change in the character of the pulse, while the intestinal canal was being flushed, was one of the most striking features in the case. While, during the first part of the operation it was weak and "thready" and registered about 180 beats to the minute, it suddenly improved during the flushing to a pulse which might, by comparison at least, be called "strong," and which was only 140 beats in the minute. This improvement in the pulse persisted throughout the rest of the operation. In fact, after the flushing of the intestine was done until the patient left the hospital for her home, the pulse was at no time less good in quality than what might be called "fairly strong."

If what I have just written in reference to the effect of injections of hot saline solution into the intestine under such conditions is true, it would seem to indicate that these flushings may be useful in other conditions, in which there is acute intestinal toxemia associated with ileus, for example, in selected cases, typhoid fever in some of the acute infectious diseases of the intestine, and in cases following as of abdominal operation where the patient is suffering from a high degree of sepsis or of shock, where it is desirable to introduce, as soon as possible, into the body a large amount of heated fluid at a place where it can be most readily absorbed into the circulation, to improve the pulse and to combat shock. Even if, in a case, one is not successful in flushing (that is, in washing the intestinal contents through the colon and out of the anus), presumably no harm has been done, and the intestinal contents will have been at least washed nearer the anus, while the presence of a large amount of hot saline solution in the colon should improve the condition of the pulse and assist in combating shock.

In concluding this paper I wish to say that I have tried to refrain from making extravagant claims as to the usefulness of this new procedure, but I cannot help feeling that its employment in this individual case, where the patient was evidently dying from a streptococcus peritonitis, was as severe a test as could have been selected for it. I hope that the facts here recorded will interest the profession sufficiently to induce surgeons to give the method a more thorough trial than at present I have been able to give it, and, if the method proves to be efficient in their hands, to determine its degree of efficiency, and the proper limits of its usefulness.

Massachusetts General Hospital.

CLINICAL MEETING OF THE STAFF, MAY 17, 1907.

A CASE OF MULTIPLE PAPILLOMATA OF THE BLADDER.

BY LINCOLN DAVIS, M.D.

J. H. R., forty-seven, married, worker in woollen mill, was first seen by me in the Genito-Urinary Department of the Out-Patient on Sept. 1, 1906.

He gave the following history: Family history unimportant. Never had any venereal disease. About one year ago first noticed dull pain over the pubes. Six months later the urine became bloody. The bleeding was intermittent in character; the urine would be continuously bloody for two or three days, and then clear for a week or two. One week ago had an attack of severe pain in the testicles, shooting up into the bladder. At no time was there pain on micturition or frequency.

Examination showed a rather poorly developed and nourished man. There was a left-sided varicocele. The right epididymis was markedly thickened, and contained a distinct nodule. By rectum, the prostate was found soft and full, without nodules; the vesicles were not felt. The kidneys were not palpable. The urine was slightly cloudy, but not bloody. The sediment was not examined microscopically.

A provisional diagnosis of tuberculous epididymitis and cystitis was made. A note appears in the record to the effect that a specimen of urine should be saved for guinea-pig inoculation. This, however, was not done.

At the next visit of the patient, on Sept. 8, the urine was perfectly clear. A Kollman cystoscope was intro-

duced into the bladder, and a very beautiful view obtained of the source of the alleged hemorrhages. Just above the left ureteral orifice there was seen a pedunculated lobulated papilloma, the size of a strawberry, and not unlike it in appearance, standing out in bold relief against the normal white of the bladder wall. A similar smaller growth was seen above the right ureteral orifice, and still another close to the internal urethral orifice. The bladder wall was not inflamed, both ureteral orifices were normal and functionated normally; the prostate was not enlarged.

The instrumentation caused no pain or bleeding. The patient was recommended to the House for operation, with the diagnosis of papilloma of bladder.

On Sept. 29, 1906, he entered on the service of Dr. Mumford, who very kindly turned the case over to me.

On Oct. 2, I did a suprapubic cystotomy and found in addition to the three tumors seen with the cystoscope, four others of small size which were scattered over the floor and left wall of the bladder in the vicinity of the larger growth. Each tumor was grasped with forceps and excised at its base with curved scissors, a fair margin of bladder wall being taken. The defects in the bladder wall were closed with chromicized catgut sutures, which controlled the bleeding fairly well. The bladder incision was closed about a rubber drainage tube. There was some post-operative bleeding which was controlled by irrigation with adrenalin solution. There was practically no blood after the third day. The tube was removed on the sixth day and urethral drainage through a catheter instituted. On the twentieth day there was a sharp rise of temperature, with a chill; there was at this time considerable pus in the urine, evidently from an infection of the bladder wall. There was also a slight systolic murmur noted for the first time. The urine cleared up gradually with daily irrigations, and the other symptoms likewise subsided, so that at the end of a month he left the hospital. At this time the suprapubic wound was healed, and he was passing urine per urethram, with slight frequency and burning. The urine was cloudy, but without macroscopic blood.

Dr. Whitney's report on the largest of the tumors was as follows:

"A fungus growth 2.5 to 3 cm. in diameter, with a small base. The bulk of the growth was made up of fine villous-like papillary projections. Microscopic examination showed the growth to be composed of solid masses of large epithelial cells in many layers covering a thin walled blood vessel. Over the greater area of the base it was sharply circumscribed, with a well-defined basement membrane, but here and there there seemed to be a slight evidence of ingrowth of the epithelial cells.

"Diagnosis: Villous papilloma (malignant)."

On Dec. 7, 1906, I again saw the patient. He was looking rather pale and emaciated. The urine was slightly cloudy and contained the slightest possible trace of albumin; no blood. I made a cystoscopic examination, and found the bladder wall everywhere smooth and white. A slightly depressed stellate scar above the left ureteral orifice was the only evidence of the former operation to be seen. There was no sign of the catgut stitches.

At the present time the patient is working hard, driving a furniture delivery wagon, and doing considerable lifting. His only symptoms are slightly increased frequency of micturition, and slight urgency. The urine is clear and sparkling. There has been no recurrence of blood.

The points of interest in this case are, first and foremost, the value of the cystoscope in making a diagnosis; without its use the case might easily have passed for one of tuberculous cystitis. The multiplicity of the tumors I regard as of particularly bad prognostic import, and for that reason shall keep the patient under close observation, with frequent cystoscopic examinations.

The situation of the growths in this case, as in others I have observed, suggests strikingly the fact that these tumors may be propagated by simple contact.

MYASTHENIA GRAVIS; DEMONSTRATION OF A CASE.

BY W. E. PAUL M.D.

A. L., twenty-six, widower, was transferred in November, 1906, to the Neurological Department by Dr. A. K. Stone.

The patient was a polisher in a jewelry shop. The family history was not remarkable.

Eight years ago he had a hard chancre and was treated twenty-four months.

He used tobacco to excess, but has used none for a year. Alcohol has been used excessively at times.

Eighteen months ago, in the course of a severe cold, the first myasthenic symptoms developed in his arms at his work. Within a month, at times, the myasthenic symptoms had appeared in the facial, ocular, chewing, swallowing, and many other muscles of the trunk, and all extremities. The sphincters have escaped. There has been no disturbance of sensation.

Examination showed active knee jerks, Achilles present, plantar normal. The pupils were equal, slightly irregular and reacted normally.

The urine is about 32 oz. in twenty-four hours and shows nothing abnormal.

The heart and lungs are not diseased.

There was no "myasthenic reaction" and the knee jerk could not be exhausted.

The patient has died since this report was made.

REVIEW OF CASES OF CANCER OF THE LARYNX TREATED IN THE WARDS OF THE MASSACHUSETTS GENERAL HOSPITAL SINCE 1874.

BY D. CROSBY GREENE, JR., M.D.

SINCE the year 1874, 24 patients have been treated in the wards of this hospital for cancer of the larynx. The card index gives the names of 7 others. Some of these were discharged untreated, and in the rest the diagnosis was not definitely established and I have, therefore, excluded them from this series. In 12 of the 24 which I am reporting, the diagnosis was not confirmed by the microscope. These were all advanced cases in which, with one exception, palliative tracheotomy for the relief of dyspnea was performed. The diagnosis in these instances was made by laryngoscopic examination, and was later, to some extent, confirmed by death from malignant disease of the throat, as recorded in the death records at the State House.

In view of the rapid increase in growth of cancer in this situation following the removal of even a small section, this procedure is not regarded as justifiable in those cases in which it is purely for the purpose of confirming the diagnosis, and is not a preliminary to radical operation.

I propose to report briefly the statistics of the 24 cases with reference to age, sex, the operations performed, the mortality from operation, and the duration of life in those cases which survived operation.

Age: The youngest case was twenty-seven years of age and the oldest seventy-three. By decades the cases may be classified as follows:

Age, 20 to 30 years,	1
" 30 " 40 "	1
" 40 " 50 "	6
" 50 " 60 "	8
" 60 " 70 "	6
" 70 " 73 "	2
Total,	24

Only two were under forty-five years of age.

Sex: In the matter of sex there is a distinct selection of the male; 20 of the cases being men against 4 women.

Operations: Two of the 24 patients were not operated upon. One died of asphyxia while in the hospital and one three months after leaving. The latter was a case of advanced and extensive disease of the posterior portion of the larynx, largely extrinsic and without dyspnea.

In 12 of the cases the disease was so extensive that tracheotomy for the relief of dyspnea was the only treatment given. All but one of these patients survived the operation for several months. This one exception died in nine days. At autopsy he was found to have extensive tuberculosis of both lungs.

It is interesting to note the duration of life after the disease has advanced to such an extent as to demand tracheotomy.

Three of these cases died in about three months, one in four and a half, one in five, one in six and one half, one in eleven, one in twelve and one in thirty-six months. In two instances I did not find the date of death.

The case which lived for three years after tracheotomy was a sea-captain from Yarmouth, sixty-nine years of age at the time of operation. He was tracheotomized on May 16, 1892, and died in Yarmouth, May 1, 1895. His death was certified by the attending physician as being due to cancer of the larynx.

Coming now to the operations for cure, epiglottidectomy by subhyoid pharyngotomy was performed for cancer of the epiglottis twice. In both instances operation was followed by death from pneumonia, in two and four days respectively.

Laryngotomy with removal of soft tissues from the interior of the larynx was performed three times. One case died eight hours after the operation. Autopsy was not allowed. This patient was anesthetized with ether by rectum. Death was preceded by the passage of bloody stools. The heart, lungs and trachea were examined by extracting them through the laryngo-tracheal incision and no cause of death was found in them. The other two cases of laryngotomy recovered from operation. In one there was no recurrence at the end of four years, and in the other there was recurrence in two months, in consequence of which a total laryngectomy was done. In 4 cases in which total laryngectomy was done, death from the operation resulted twice, — in one case from aspiration pneumonia, and in one from shock. Of the 2 who survived operation, one died of recurrence in five months, and one has recurrence at four months, from which he will probably shortly die. One case of adenocarcinoma involving the larynx was operated upon. In this operation the tumor was excised without removal of the larynx.

To sum up the results of 10 operations for cure:

The mortality from operation was 5,	or 50%.
Recurrence in 3,	or 30%.
No recurrence in 2,	or 20%.

In the 12 cases in which histological examination was made, the growth was found to be epithelioma in 10, medullary cancer of the epiglottis in one, and adenocarcinoma in one.

In one case there was a definite history of benignant papilloma of the larynx existing for eight years previous to admission to the hospital. The papilloma, which was on one ventricular band, was recurrent, and portions of the growth were removed from time to time and examined microscopically. No evidence of malignancy was found until a short time before the patient was admitted for operation.

In reviewing the records of these cases the most striking fact was the advanced stage of the disease in the great majority of the patients who presented themselves for treatment. In only 4 was the growth apparently confined to a small area, — in 2 within the laryngeal cavity and in 2 on the epiglottis.

This appears to be especially unfortunate when we consider the peculiarly favorable conditions for extirpating cancer situated within the laryngeal cavity. On the one hand its extension by growth is partially limited by the cartilaginous wall, in most cases more or less ossified. On the other hand its extension by metastases is apparently rendered less rapid on account of the attenuated lymphatic circulation in those parts which are the most frequent site for the starting point of cancer, namely, the vocal cords and ventricular bands. It has been repeatedly observed that cancer of the larynx, as a rule, grows very slowly at the beginning and that glandular metastases are usually late in making their appearance.

In epithelioma of the vocal cords or ventricular bands, the only symptom for a long period, a year or even more, may be persistent and gradually increasing hoarseness.

It cannot, therefore, be too forcibly stated that every case of hoarseness in a person over forty years of age, persisting for two or three months without improvement, should have a laryngoscopic examination. This is not meant to imply that cancer is a common cause of hoarseness in persons of cancer age, as compared with other causes, such as chronic laryngitis and forms of laryngeal paralysis; but if laryngo-

scopic examinations were made in all these cases of persistent hoarseness, there would be a much larger percentage of truly operable cases of cancer discovered in which a cure might reasonably be expected.

CASE OF FOREIGN BODY IN THE BRONCHUS.

BY A. COOLIDGE, JR., M.D.

This case of foreign body in a bronchus is reported here because it was by far the most difficult case which I have seen, and the first fatal case. R. H. B., aged five, entered the hospital March 21, 1907, in the service of Dr. C. L. Scudder, who kindly turned the case over to me. The child had inhaled a sharp steel shawl pin, a little over two inches long, one hour before admission. X-ray showed the pin, head down, in the left bronchus. On the next day the child was etherized, and a bronchoscope passed into the trachea. To my surprise no foreign body was visible at the bifurcation, where I expected to find the point of the pin. On entering the left bronchus this at first also appeared to be empty, but after searching, the shank of the pin was seen and seized, but was evidently so firmly held that its extraction would necessarily be difficult. I therefore withdrew the bronchoscope, and did tracheotomy, in order to reach the bronchus by shorter tubes of larger caliber. It soon became evident that the pin was so long that it was held firmly, the head at the bottom of the bronchus as far as it could go, and the point pinned into the upper part of the bronchus near the bifurcation. I could not cut the pin in two with any instrument within reach, and as the child's condition was poor I sent him back to the ward. The next day I extracted the pin by inserting a small blunt hook around the pin where it entered the mucous membrane, pulling on this hook, while I seized the shank of the pin with forceps and pushed it downwards. In this way I finally succeeded in unpinning and extracting it. The child failed and died twenty-fours after the operation. As there was no autopsy the cause of death was not evident.

END RESULTS OF 376 PRIMARY OPERATIONS FOR BREAST CANCER AT THE MASSACHUSETTS GENERAL HOSPITAL BETWEEN JANUARY 1, 1894, AND JANUARY 1, 1904.

BY R. B. GREENOUGH, M.D., C. C. SIMMONS, M.D., J. D. BARNEY, M.D.

A brief abstract was presented of the report read at the meeting of the American Surgical Association in Washington, on May 8, 1907. The report was based on 376 consecutive cases of primary operations for cancer of the breast performed during the ten years prior to Jan. 1, 1904.

The conclusions reached as the result of the study of these cases were as follows:

SUMMARY.

I. Out of 416 cases of primary operations for cancer of the breast at the Massachusetts General Hospital, from 1894 to 1903 inclusive, 376 were traced to a conclusive end result at an average period of eight years after operation.

II. Sixty-four cases were alive and well and 7 died without recurrence over three years after the operation.

III. Counting in the operative mortality, there were 320 attempts at radical cure, 67 of which, or 20.9%, were successful.

IV. During this same period palliative operations were performed on 56 patients (15%) and 52 cases were discharged untreated.

V. Cases in which the tumor was ulcerated, or was adherent to the skin or to the chest wall and cases in which the axillary glands were palpably enlarged gave notably less promising results than when these conditions did not exist.

VI. No case with palpably enlarged cancerous glands above the clavicle and no case of cancer of both breasts was cured.

VII. Medullary carcinoma was more grave than that of the scirrhus type, and adenocarcinoma and colloid were relatively of a far less malignant type.

VIII. The duration of the disease, other than in the individual case, exerted little influence on the prognosis.

IX. Extensive operations with wide removal of skin gave the greatest freedom from local recurrence. Removal of the pectoralis minor appeared to be of slight significance. Incomplete operations on early cases yielded better results than extensive operations on cases which were well advanced.

X. Recurrence in the scar occurred in less than one half of the cases. Internal metastasis was most frequent in the lungs, mediastinum, in the axillary and supraclavicular glands, the liver and the spine.

XI. Seventeen out of 88 cases, or 19%, of those passing the three-year limit without evidence of recurrence, showed recurrence later, and four cases developed recurrence six years or more after the operation.

Medical Progress.

PROGRESS IN PATHOLOGY.

A CRITICAL REVIEW OF VARIOUS METHODS EMPLOYED FOR ISOLATING TYPHOID BACILLI FROM STOOLS.

BY JOSEPH H. PRATT, M.D., BOSTON.

(Concluded from No. 24, p. 783.)

(f) Nowack's malachite green agar.

Nowack[103] employed malachite green 120 in a concentration of 1 : 2000 or 1 : 2500. He also used with success malachite green crystals "superfein" in a concentration of 1 : 50000. Only a small proportion of the typhoid bacilli planted on malachite green agar formed colonies (5% to 30%). He inoculates the green plates with a larger amount of the fecal suspension than do the other investigators. Two large plates are prepared, and 0.5 to 1.0 cc. of the fecal material (10 to 30 drops—see Neumann[101]) are spread over the surface of each. Nowack[103] employed Liebig's beef extract instead of beef infusion in the preparation of the agar.

Into a 2-liter flask is placed 1 liter of distilled water, 5 gm. of sodium chloride, 10 gm. of peptone sicc. (Witte), 10 gm. of Liebig's beef extract and 20 gm. of agar. These ingredients are

dissolved by heating the flask in a boiling salt bath (a saturated sodium chloride solution boils at 107°), or less quickly in an ordinary water bath. The best results were obtained with a medium whose reaction was 0.8% acid to phenolphthalein. Doebert [25] and, more recently, Neumann [101] have obtained better results with beef extract agar of Nowack [103] than beef infusion agar of Lentz and Tietz. Lentz used Nowack's agar with unsatisfactory results.

Jorns [66] stated that only 25% (approximately) of the typhoid bacilli grew on malachite green Ia* media, and 50% on malachite green 120. Nowack [103] found that only 15% of the typhoid bacilli grew on his medium. Klinger [74] had previously noted that some strains of typhoid bacilli formed a very meager growth on malachite green agar. Lentz and Tietz on the other hand have asserted that the growth of B. typhosus was inhibited "in only slight degree." Doebert [25] studied this question with care. In his experiments with Lentz and Tietz's malachite green agar not more than 74% of the typhoid bacilli ever grew. The agar was made "slightly acid" as Lentz and Tietz directed.

Doebert [25] in Rubner's laboratory used the same stock of malachite green with which Nowack [103] had worked eight months previously, but found that during this period the dye had become considerably weaker. He used the dye in the same concentration and with the same agar, but he does not state that the reaction was the same. He rejected for this reason malachite green 120 and used instead "*Malachitgrünkristalle superfein*," only to find that the pure malachite green crystals had deteriorated. Nowack [103] obtained no growth of colon bacilli when the concentration of the dye was 1 : 100000. Doebert [52] found nine months later that some colon colonies appeared even when a concentration of 1 : 60000 was used. Doebert [25] seems unacquainted with the fact that the inhibitory power of malachite green depends in part on the reaction, and the proper reaction must be determined for every specimen of malachite green. This has been shown by experiments made by Peabody and Pratt.[109]

Leuchs [85] advises the use of malachite green crystals because these are pure preparations, while both malachite green 120 and malachite green 1 contain dextrin. He tested a number of preparations obtained from different dye works. These included the oxalate, the chloride and a zinc double salt of tetramethyl di-p.-amidotriphenylcarbinolanhydrite. These acted similarly although the zinc double salt appeared less adapted to the purpose of differentiating typhoid and colon bacilli than the two other kinds of malachite green crystals. He found that the specific action of each was increased by adding 1% or more of dextrin. Leuchs [85] maintained that the crystals are of constant strength and that unlike malachite green 120, the pure substance does not weaken with age. The more recently published observations of Doebert [25] would indicate that the crystals deteriorate. It is possible that Doebert did not use media of the same reaction as did Nowack, and this may account for the apparent loss of strength of the dye. Jorns [66] pointed out that malachite green solutions gain in strength on standing. Doebert [25] found that if kept too long the malachite green solution loses its power of inhibiting the growth of B. coli. A solution thirty days old was stronger while one fifty days old was weaker than one freshly prepared. Malachite green agar loses its green color and its bactericidal property if allowed to stand several days in the sunlight. Peabody and Pratt [109] studied a specimen of malachite green which, added to agar in a dilution of 1 : 20000, permitted the typhoid bacillus to grow luxuriantly while the development of colon colonies was completely inhibited *provided the reaction of the medium was* 0.5% *acid* to phenolphthalein. But on a plate containing the same proportion of malachite green but an acidity reduced to 0.1% acid, 60 colon colonies developed and the typhoid colonies grew profusely. When the medium was 1.0% acid neither typhoid nor colon bacilli grew on the plates. It is apparent from reading Doebert's article that he does not realize how profoundly a slight change in the reaction of the medium may affect the action of malachite green.

(*g*) *Peabody and Pratt's malachite green method.*

This is simpler than that of Lentz and Tietz. Instead of using malachite green agar they employ a malachite green bouillon as an "enriching" culture. The proper dilution of malachite green and the proper reaction of the medium must be determined for the particular stock of malachite green 120 that is used. The bouillon is prepared from beef infusion, and placed in medium sized test tubes, 10 to 15 cc. in each tube. To each tube of malachite green bouillon is added a drop of a fecal suspension. At the same time one or two large v. Drigalski-Conradi plates (15 cm. in diameter) are inoculated. After eighteen to twenty-four hours' growth at 37° C., 2 more v. Drigalski-Conradi plates are inoculated with a drop of the malachite green bouillon culture rubbed over the surface of the agar by means of the end of a small sterile test tube which has proved to be a satisfactory substitute for a v. Drigalski-Conradi spatula. If the growth in the bouillon is profuse a dilution is made in salt solution and from this v. Drigalski-Conradi plates are inoculated.

Pratt and Long [119] examined 44 typhoid stools by the malachite green agar of Lentz and Tietz, the malachite green bouillon of Peabody and Pratt,[109] and the v. Drigalski-Conradi [28] method. Positive results were obtained 7 times by the method of Lentz and Tietz, 13 times by that of Peabody and Pratt,[109] and 18 times by the v. Drigalski-Conradi plates. Other observers (Bonhoff,[11] Friedel,[38] Lentz and Tietz [83]) have also noted that the paratyphoid bacilli grow more vigorously on malachite green media than the typhoid bacillus. B. typhosus was isolated more times by the litmus plates alone than by

* This is the trade-name for one preparation of malachite green.

means of the malachite green enriching cultures. This indicates that the typhoid bacilli present in the feces belonged to those strains that do not

	Number of times B. typhosus was isolated.	Number of times B. paratyphosus was isolated.
Lentz and Tietz's malachite green agar method	1	6
Peabody and Pratt's malachite green bouillon method,	2	11
v. Drigalski and Conradi's litmus-lactose method,	12	6

grow well on malachite green media. For isolating paratyphoid bacilli malachite green media seems almost ideal, but so far as the typhoid bacillus is concerned they certainly do not fulfill the requirements for ideal media that were mentioned at the beginning of this section.

V. CHEMICAL PRECIPITATION DEVISED TO SEPARATE BACTERIA FROM FLUIDS.

Recent work supports the view of Jacqué [65] that a perfectly satisfactory method for isolating typhoid bacilli will have as its basis something more than the inhibitory action of a chemical body on the other bacteria present in the feces. Another objection to the method at present in use is the small amount of material utilized for the tests. Usually not more than 1-1000 part of the entire stool is examined bacteriologically. (Reischauer.[122])

Precipitation of the bacteria has been employed with success in the examination of water.

(a) *Vallet-Schüder's method.*

Vallet [147] used a combination of mechanical and chemical precipitations. He added 4 drops of a saturated sodium hyposulphite and 4 drops of a lead nitrate solution to 20 cc. of water and centrifugalized for four to six minutes. Elsner plates were inoculated from the precipitate. Klempner found that in certain cases centrifugalizing alone gave better results. An experimental study led Schüder [138] to conclude that the method of Vallet [147] in modified form was of definitev alue. He used v. Drigalski-Conradi instead of Elsner plates. When the method was applied to the examination of feces a voluminous precipitate was produced that was only slightly dissolved in a 100% solution of sodium hyposulphite. Twice, however, he recovered B. typhosus from feces and urine. Reischauer [122] found Schüder's [138] procedure valueless for the examination of stools, owing to the formation of the bulky insoluble precipitate. He also obtained poor results with Ficker's [35] process in which the precipitating agent is ferrous sulphate. Willson [151] has described an alum precipitation but he did not test it on fecal suspensions.

(b) *Reischauer's method.*

Reischauer [122] states that Liq. ferri oxychlorate precipitates bacteria from a suspension of feces without injuring them. He recommends its use in those exceptional cases in which there is much water and relatively few bacteria in the stools.

VI. BIOLOGICAL PRECIPITATION DEVISED TO AGGLUTINATE AND SEPARATE TYPHOID BACILLI FROM FLUIDS.

(a) *Windelbandt-Schepilewski's method.*

In distinction from the chemical precipitation one might speak of the sedimentation of agglutinated bacteria as a biological precipitation. This consists of adding typhoid serum to a suspension of bacteria. This method was introduced by Windelbandt [153] and it is usually described as the Windelbandt-Schepilewski method. It has been employed in the examination of water by Windelbandt,[153] Altschüller,[4] Schepilewski,[137] Hagemann[49] and Adami and Chopin.[2] Hagemann [49] would combine the chemical precipitation of Schüder [138] with the method of biological sedimentation used by Windelbandt and Schepilewski.

(b) *Chantemesse's method.*

Chantemesse [18] inoculated 10 cc. of peptone water with typhoid dejecta. After six or seven hours' growth in the incubator the culture was filtered and to the filtrate a few drops of typhoid serum were added, the fluid after allowing the serum to act for fifteen minutes, centrifugalized, and plates inoculated from the sediment. Reischauer [122] was unable to obtain the favorable results that Chantemesse claimed for this method. He had no better success when he worked with larger amounts of feces — up to 10 cc.— added to large amounts of peptone water — 200 to 500 cc.

Ficker and Hoffmann,[36] as well as Klinger,[74] found biological precipitation to be a valuable addition to the caffeine method. Bassenge [6] concluded that biological precipitation was of no value in the examination of milk, and Sobernheim did not find it of service in the examination of water.

VII. METHODS BASED ON MOTILITY OF B. TYPHOSUS IN FLUIDS.

(a) *Ali Cohen's method.*

Pfeiffer,[115] the botanical physiologist, was the first to study the chemiotaxic movement of bacteria. Ali Cohen [3] soon afterwards attempted to utilize the property of positive chemiotaxis in isolating B. typhosus. He placed capillary tubes containing raw potato juice in a suspension of feces with the expectation that typhoid bacilli alone would be drawn into the tubes. Lösener [94] showed the uselessness of this method. All the motile bacilli were attracted to the potato juice, and hence no separation of typhoid bacilli from motile colon bacilli was possible.

(b) *Reischauer's method.*

Reischauer [122] added caffeine to a fecal suspension for the purpose of inhibiting the colon bacilli and used a glass tube provided with about 50 capillary projections. Diffusion currents made the experiment a failure.

(c) *Gabritschewsky's method.*

Gabritschewsky [39] covered an agar plate with a moist sterile sheet of filter paper and inoculated the central portion with the bacterial mixture. After a few hours the typhoid bacilli reached small bits of filter paper placed at varying distances from the center. Bouillon tubes were inoculated with these small pieces of filter paper. He succeeded in isolating typhoid bacilli from the stools in 1 out of 2 cases. In order to prevent the progressive movement of the motile colon bacilli he added a colon agglutinating serum. The value of this method has never been demonstrated As colon and typhoid bacilli are not the only motile bacteria the chance of success with this method would appear to be small; furthermore there are many varieties of colon and allied bacteria and no single agglutinating serum will act on them all.

(d) *Kleine's method.*

Kleine devised a simple method which is described in the monograph by v. Drigalski and Conradi. A suspension of a typhoid stool is made in normal saline solution and this is centrifugalized for some time and allowed to stand for fifteen minutes; then several series of plates are inoculated from the surface of the fluid at intervals of ten minutes. After centrifugalizing the typhoid bacilli will rise more quickly from the bottom of the tube to the surface than micro-organisms that have little or no power of motion.

(e) *Hayashikawa's method.*

Hayashikawa [52] inoculated with fecal material the centers of hanging drops of gelatin, each drop being 7 mm. in diameter. They were placed upon a warm stand. After some time the preparations were removed and the melted gelatin allowed to solidify. He claimed that in the periphery of the gelatin B. typhosus was frequently present in pure culture. As proteus, B. fecalis alkaligenes and other fecal bacteria are as motile as the typhoid bacillus, this method would seem to have slight value.

(f) *Cambier's method.*

Motile bacteria will pass through the pores of a porcelain filter immersed in a nutrient fluid more quickly than non-motile bacteria. Light has been thrown on this subject by the investigations of Pfuhl [116] and v. Esmarch.[32] Cambier [13] found that if Chamberland candles (Marke F) were placed in bouillon at 37°, typhoid bacilli were able to pass through in about eight hours. To hold back the motile species of B. coli he employed instead of bouillon, a 3% peptone solution to every 100 cc. of which 12 cc. of a 1% sodium hydroxide solution saturated with sodium chloride. Bienstock [7] indorsed this method. In the hands of Biffi,[8] Lesieur,[84] Kirsch,[71] Jacqué,[65] the procedure was a failure, owing to the fact that B. coli frequently appeared in the filtrate earlier than B. typhosus. Reischauer modified the procedure by the use of caffeine. He hoped thereby to prevent B. coli from penetrating the wall of the filter. Unfortunately the experiment failed, because caffeine rendered B. typhosus almost non-motile. Reischauer's [122] tests with Berkefeld and Kitasato filters were also unsuccessful.

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THE AMERICAN SURGICAL ASSOCIATION.

REPORT OF MEETING HELD AT WASHINGTON, D. C., MAY 7, 8 AND 9, 1907.

(Concluded from No. 24, p. 786.)

ABSTRACT of paper on

FOUR CASES OF RUPTURE OF THE KIDNEY; WITH REMARKS UPON CONSERVATIVE OPERATIVE TREATMENT,

by THOMAS R. NEILSON, M.D., Philadelphia.

The 4 cases occurred in the experience of the writer at the Episcopal Hospital, Philadelphia.

CASE I was that of a farm-hand, age twenty-five years, admitted to hospital April 14, 1901, having, late on the preceding day, fallen from and been run over by a heavy farm wagon which he was driving.

The symptoms on admission were: pain in the left chest (due to fracture of tenth rib); hematuria; distention of the abdomen with muscular rigidity, especially in the lower part; temperature 99°, pulse 80, respiration 40.

Later in the day, when seen by the writer, the patient presented evidences of continuing hemorrhage and increase in the abdominal condition.

The abdomen was opened through the left rectus muscle, and found to contain a large quantity of blood and clots. None of the viscera were injured and the source of bleeding was the left kidney, which was ruptured, the peritoneum in front of it being torn. A gauze pad placed against the kidney through the opening in the peritoneum controlled hemorrhage while the abdominal cavity was cleared of blood and clots and the wound closed, a glass drainage tube being inserted into the pelvis.

An oblique lumbar incision was then made, blood and clots removed from the region about the kidney and the latter examined. A number of lacerations were found chiefly in the lower half. Strip of iodoform gauze packed firmly about the kidney stopped the bleeding.

Normal saline solution was given during the operation both by intravenous transfusion and by hypodermoclysis. Immediately after operation the condition was critical, but the patient soon improved and gradual recovery took place, a fistulous tract which formed finally healing on July 17.

CASE II. A boy, sixteen years old, struck in the right hypochondrium and on the head by the fender of a trolley car.

On admission, there was pallor, dilated pupils (but responding to light), some abdominal pain and distention, no muscular rigidity, hematuria. Vomiting occurred during the night. The general condition was much improved by the next day, and there was less pain.

On the following day the patient complained of great abdominal pain, and tenderness in the loin had increased.

Operation was then done. Abdomen opened through right rectus muscle. Nothing found but a small quantity of blood which had come from the kidney through a tear in the peritoneum. Abdominal incision was closed and an oblique lumbar incision made, blood and clots removed and the kidney found almost bisected by a transverse tear. Hemorrhage was severe. Firm packing with gauze arrested it.

The patient did well until the twelfth day, when after dressing and removal of the last of the gauze a violent secondary hemorrhage occurred. Repacking of the wound, intravenous transfusion of normal saline solution and stimulants failed to cause reaction, and the boy died eight hours later.

CASE III. A laboring man, age fifty, working at a coal wharf, was struck in the back by a heavy iron bucket and was taken at once to the hospital, where he was admitted on Dec. 17, 1904.

There was a large hematoma in the right lumbar region, which was exceedingly tender, and the patient voided urine containing a large amount of blood.

Immediate operation was done, the kidney being exposed and delivered through an oblique lumbar incision. There were a number of lacerations of the convex border and of both the anterior and posterior surfaces as well as several contusions. The transverse processes of the first and second lumbar vertebræ and

the last two ribs were fractured. Pressure upon the pedicle of the kidney controlled bleeding while loose fragments of bone were removed and the sharp bases of the fractured transverse processes cut off with bone forceps. The kidney was returned, firmly packed with strips of iodoform gauze and the wound partly sutured.

The patient did well and was discharged from hospital on Feb. 11, 1905.

Case IV. A boy, six years old, fell from a pile of lumber. When brought to hospital he was pale, and complained of pain in the left lumbar region, where he was tender to pressure. Bloody urine was obtained by catheter.

Operation was immediately done. Oblique lumbar incision was made and the kidney delivered. There were a number of small tears of the convexity and anterior surface, but it was most severely injured at its lower pole, from which a large piece was entirely detached. This was removed. The kidney was replaced, being firmly held by hammock strips of gauze at its poles, and gauze was firmly packed against it, entirely controlling the bleeding.

The patient did well after operation. For a time urine was discharged from the wound, but only for a few days. The wound was completely healed, and the boy was discharged from the hospital in fifty-one days.

In connection with these cases mention was made of a case, which also occurred in the experience of the writer, of a severe rupture of the liver associated with rupture of the right kidney, the result of a fall. This case was reported to the Philadelphia Academy of Surgery in April, 1903.

The patient was not seen until the third day after the injury. Gauze packing of both kidney and liver wounds stopped the bleeding and recovery took place.

A brief allusion was made to some of the more comprehensive contributions to the literature of injuries of the kidney, beginning with the study by Maas, in 1878, of 71 cases. Dr. F. S. Watson, in June, 1903, published a paper analyzing 660 cases. The writer has been able to find but 30 cases published since then, 16 being included in a table published by A. H. Barkley, in February, 1907. The four cases now reported raise the number to 34.

The highest mortality in subparietal injuries of the kidney is in the cases not treated surgically.

Comparison of the results of conservative operative procedures and nephrectomy, including the statistics of Watson, is made. The results of operations other than nephrectomy give a far smaller death-rate than the latter. This may be thought largely due to the fact that in the former group of cases the injuries were less severe than in those treated by nephrectomy. The writer does not think that this applies to many of the cases, however.

Surgical interference in rupture of the kidney is called for, in the first place, for the control of hemorrhage and the prevention of extravasation of blood or of urine into the tissues, or into the abdominal cavity, in case the peritoneum be torn; secondly, for the treatment of injuries of other organs in addition to those of the kidney which may have occurred; third, to place the kidney, whenever possible, under circumstances most favorable to repair; and lastly, to provide means against the occurrence of infection.

If there are grounds for believing that hemorrhage is taking place, — lumbar tumefaction, severe or persistent hematuria, evidence of fluid in the abdomen, constitutional signs of hemorrhage and indications of complicating abdominal injury, — operation should be done without delay.

Expectant treatment is permissible only when local symptoms are insignificant and slight hematuria alone indicates renal injury.

The choice between abdominal section and lumbar incision must be made upon the merits of individual cases, but if laparotomy be done, the loin should be opened for drainage.

Nephrectomy will be necessary if the kidney is so injured as to be mostly pulpified, if one of its principal blood-vessels is torn, or if it be surgically diseased. But when the injury consists of a single, or even two clean tears, nearly dividing the kidney, or when, as more often happens, there are several or many more or less deep lacerations and contusions, not devitalizing the organ, an effort to save it is justified, if there are fair grounds for believing that there is reasonable hope of repair. If a portion of only the kidney be badly mutilated, partial is preferable to complete removal.

Hemorrhage can be thoroughly controlled by packing with gauze, either plain sterile or iodoform gauze, which can be quickly done, and serves well for drainage, although any dead apices in the perirenal region outside of the packing should be drained by rubber tubing.

Suture of the kidney wounds is applicable instead of packing in only those cases in which there are one or two clear tears, but not for ragged lacerations. It has been done only ten times in 125 recorded cases of conservative surgical treatment. Recovery from operation in all was prompt, a much shorter time being required than in cases treated by packing, but in two the ultimate results were not good, a fistula in one (Watson), and secondary nephrectomy was required in the other, with a fatal dermination. In spite of the abbreviation of the period of recovery by suturing of the renal wounds, the number of cases to which it is suited will be small and gauze packing, satisfactory both for hemostasis and drainage, must be relied upon in the larger number.

Dr. Charles A. Powers, of Denver, Colo., read a paper entitled

PRIMARY SARCOMA OF THE PROSTATE.

His patient was a man of sixty years who had had no bladder trouble until two months before seen, at which time he began to notice a little pain and discomfort on urination and began to rise in the night to urinate. Symptoms rapidly increased and coincidently the patient lost flesh and strength.

On examination the man complained of constant severe pain in the hypogastric region with a constant pain, less severe, in the recto-perineal region. He was urinating about every one and a half hours, urination being attended by increasing difficulty and pain. The urine was entirely normal. Catheterization found no residual urine whatever. Rectal examination revealed a very large, rounded, slightly nodular balloon-like prostate. The finger did not reach the upper margin. The impression gained on digital examination was an unusual one. A tentative diagnosis of sarcoma was made. Operation performed Feb. 12, 1907, perineal prostatectomy. The finger entering the mass through the prostatic urethra began the process of enucleation, which was attended by profuse, alarming hemorrhage. This was difficult to check. Frequent hemorrhages obliged one to stop and pack. Nowhere could a lead be gained between gland and capsule. Friable masses were reamed out from both sides of the gland; these had to the eye the appearance of sarcoma. It was not possible to entirely get beyond the growth. The patient succumbed to a double pneumonia on the fifth day. Histological examination of the growth made by Dr. J. A. Wilder showed it to be a small round-celled sarcoma.

A careful search of the literature revealed but 19 additional authentic cases of primary sarcoma of the prostate microscopically proven. Twelve of these were in children under fifteen years of age, 7 of them were of the small round-celled type. Each of these cases succumbed to operation or to a recurrence of the growth.

DR. ARCHIBALD MACLAREN, of St. Paul, Minn., presented a paper on

PROSTATECTOMY.

During the past year two excellent works on this subject have appeared: one by Young and the other by Deaver, in which the two extremes are found, *i. e.*, perineal and suprapubic route. Young always removes the prostate through the perineum; Deaver usually uses the suprapubic operation of Freyer.

The author quotes from Charles Mayo, Murphy and Bellefield, giving their reasons for following one or the other of the above methods. He says that the results obtained by such men as Young, Deaver, Mayo, Goodfellow and many others makes one feel that both operations have been established on a firm and lasting foundation.

As follows, he describes his methods, and reports cases:

"For several years I made the suprapubic operation with excellent results. Some bled profusely and had to be packed; a few old men had infection of prevesical space; these bad cases did better when they had a perineal drain, therefore it seemed best to make the drainage opening first and explore from below, then if it seems easier and safer to remove the prostate from above, we can later make a suprapubic opening. Since adopting this method of perineal exploration I have met with very few cases which could not be successfully removed through the perineal wound. First making a median perineal incision, opening the prostatic urethra and after exploring the bladder with the finger, I have usually found that the prostate could be removed through the prostatic urethra. After exploring the bladder with the finger, withdraw the finger into the prostatic urethra and pass into the urethra a sharp-pointed, short-bladed bistoury, and with the finger as a guide make a slit one inch long in the side wall of the prostatic urethra, cutting deep enough to be certain that the capsule is well divided."

The author objects to Young's method because too much anatomy is exposed, and on account of the danger of rectal fistula, which developed in the only case that he has tried Young's method in. His personal experiences in this operation are given, and some cases reported.

In his last 25 prostatectomies there has been but one death. In this case the man, seventy-five years of age, lived six days after the removal of his prostate, dying of exhaustion. The post-mortem showed double pyelitis with almost total destruction of the kidney substance. There were no cases of fistulæ with the exception of one rectal fistula in the only case in which Young's method was tried, and all were able to urinate normally.

DR. WILLIAM J. MAYO, of Rochester, Minn., in collaboration with DR. L. B. WILSON and DR. H. Z. GIFFIN, of the same city, presented a paper entitled

ACQUIRED DIVERTICULITIS OF THE LARGE INTESTINE.

Diverticulitis of the colon is essentially confined to the sigmoid and is due to the pressure of the hardened feces against the mucous membrane, which herniates through defects in the musculature. The weakness of the intestinal wall which permits this may be congenital or acquired.

Enteroliths form in these little pockets and give rise to infection and suppuration, or to tumor formation, constituting the disease. As a rule, only a few inches of the bowel is involved, although an enormous number of diverticulæ may be exhibited in this space.

The patients are usually obese, and over forty-five years of age. The physical evidences of the disease will be found in the middle and lower left quadrant of the abdomen. A tumor frequently exists with attacks of obstruction of the bowels, or attacks of peritonitis.

The cases seen by the authors naturally drop into three clinical groups: (1) Those in which an intraperitoneal abscess forms with spontaneous evacuation into a neighboring viscus, or evacuates externally by means of operation. (2) Those cases giving rise to acute or chronic obstruction necessitating operation. (3) Those in which the symptoms are mild and recovery occurs spontaneously.

Five of the specimens, secured by resection, enabled accurate pathological study.

The disease is usually mistaken: (1) For left-sided appendiceal abscess; (2) for cancer; and a large number of the cases reported as cures of cancer by resection of the intestine are really cases of diverticulitis. It requires microscopic study to tell the difference. (3) The milder cases are supposed to be fecal impaction.

The surgical treatment of diverticulitis of the colon depends upon the condition present. First, localized suppurative cases must be treated by free drainage. If in conjunction with the infective process, acute obstruction of the bowels develops as in the cases reported, a temporary artificial anus should be made, and if necessary after the infection has subsided, the involved colon may be resected. Second, if a considerable tumor is present and the symptoms do not show a tendency to disappear, it is better to make a primary resection of the affected part of the bowel before abscess and fistula supervene to render patients prolonged invalids.

DR. FREDERIC H. GERRISH, of Portland, Me., read a paper entitled

THE DIVERTICULUM ILEI AS A CAUSE OF COMPLETE INTESTINAL OBSTRUCTION IN A MANNER HITHERTO UNDESCRIBED.

The history of a case was given in which, after four days of absolute occlusion of the small intestine, surgical help was invoked. The seat of the difficulty was determined to be near the lower end of the ileum. The abdomen was opened in the right linea semilunaris, and the cause of the obstruction readily found. A diverticulum, starting from the ileum about 50 cm. from the cecum, had passed from right to left through an opening in the attached border of the mesentery, and was held there by a cord extending from its free extremity to the anterior abdominal wall. The intestine proximal to the obstruction was distended and congested; distal to this point was shriveled and pale. The diverticulum was released and cut away; the pedical was sutured, depressed into the lumen of the gut and its site covered with peritoneum. The abdominal wound was closed without drainage. Recovery was rapid and perfect.

The author has failed to find a reported case in which a diverticulum has established just such relations to neighboring parts, and considers the case to be unique in this respect. He advocates early operation for the relief of obstruction, as the high mortality in diverticular cases is plainly due to delay and not to the surgical procedure.

DR. GEORGE EMERSON BREWER, of New York City, presented before the American Surgical Association a paper on

THE ETIOLOGY OF CERTAIN CASES OF LEFT-SIDED INTRA-ABDOMINAL SUPPURATION. (ACUTE DIVERTICULITIS.)

The following is an abstract of this paper:

Three cases of left-sided intra-abdominal abscess were reported by the writer, in which no definite cause for the infection could be ascertained at the time of operation. In a fourth case a very definite cause for the symptoms was found. The history of this case was briefly as follows:

A man, forty-eight years of age, was attacked with a sudden right-sided abdominal pain associated with nausea and vomiting. These symptoms continued during the night, and on the following morning there was intense, well-marked tenderness in the lower left quadrant of the abdomen. There was no abatement of the symptoms during the following twenty-four hours, at the end of which he was found to have an elevation of temperature and increase in the pulse rate and all the evidences of a mild infection. When seen by the author two or three days later, there was well-marked rigidity of the left rectus muscle, tenderness on palpation throughout the left half of the abdomen and a distinct mass in the neighborhood of the anterior superior spinous muscles of the left side. Under ether anesthesia the abdominal wall was incised and a large abscess encountered which lay to the outer side and behind the descending colon and sigmoid. This abscess contained several ounces of foul-smelling pus, and in the bottom of the abscess cavity was a definitely formed fecal concretion about the size of a date seed. Careful inspection of the abscess wall showed a small perforation into the sigmoid.

A fifth case was that of a man fifty-eight years of age who was admitted to the Roosevelt Hospital with a diagnosis of acute appendicitis, with generalized peritonitis. On examination the abdomen was everywhere distended and tender, generalized muscular rigidity was present. On opening the abdomen the cavity was found to contain a large amount of foul-smelling pus, the intestines were everywhere injected and in places covered with fibrin. The appendix showed no definite lesion, but on removing the intestines from the pelvic cavity a perforation of the sigmoid was found, and in the immediate neighborhood an oval fecal concretion about the size of an orange-seed was detected. The rent in the sigmoid was closed, the abdomen washed out, but the patient died at the end of forty-eight hours.

From these cases the writer concludes that a rupture of an acquired diverticulum of the descending colon or sigmoid not infrequently gives rise to symptoms of intra-abdominal infection, simulating the appendix very closely. In fact, in the first two of his cases the writer was inclined to regard them as cases of appendicitis with transposition of the viscera.

Acquired diverticula of the colon are not unfrequently observed in elderly people, particularly in those who have suffered from chronic constipation. The diverticula are multiple, varying in size from a small pea to the size of an English walnut. These pouches are herniæ of the mucous membrane through the separated fibers of the muscular coat. They not infrequently contain fecal concretions.

During the past fifty years a few cases of inflammation from gangrene and perforation have been reported by pathologists, but these reports have either been buried in the records of pathological societies, or have been published in journals not largely read by clinicians. For this reason practically no mention of this condition is found in our textbooks, or in current literature. While inflammation of the congenital diverticula has been recognized for a very considerable period of time, the importance of the acquired diverticula from a pathological point of view has not been appreciated by the profession.

DR. LEONARD FREEMAN, of Denver, presented a paper entitled

THE DESIRABILITY OF EARLY OPERATIONS UPON THE NERVES IN ISCHEMIC PARALYSIS.

Ischemic paralysis (Volkmann) is generally seen in the forearm and is due to tight splints or bandages which lead to death of the muscles by depriving them of blood. The muscle-cells degenerate and are replaced by connective tissue, which slowly hardens and shrinks, causing more or less permanent contracture of the muscles accompanied by flexion of the fingers and wrist. Often the nerve trunks are pinched and injured, being transformed into bands of cicatricial fibrous tissue. This gives rise to pain, loss of sensation and trophic disturbances, often of a serious and permanent disabling nature.

In treatment, energetic massage, passive and active movements, electricity, etc., should be given a faithful trial, and will often succeed, but if improvement in nerve function does not begin promptly and progress satisfactorily, an early operation should be done to relieve the nerve trunks from pressure before they become hopelessly injured, and also for the purpose of aiding the recovery of the muscles by improving their innervation, as the condition of a muscle depends largely upon the condition of its nerve.

If this rule were followed, which seems heretofore never to have been emphasized, the author is convinced that the usefulness of many hands would be preserved which, under the present form of treatment, are doomed to remain more or less useless appendages, owing to hopeless lesions of the nerves. Several illustrative cases are given.

In operating, the nerves are loosened and placed subcutaneously. They are usually compressed at certain definite points (which may easily be reached by appropriate longitudinal incision), the median by the pronator radii teres, the ulnar by the flexor carpi ulnaris and the posterior interosseous by the supinator brevis. Sometimes the removal of a section of hopelessly damaged muscle may be of service in relieving pressure.

DR. WILLIAM B. COLEY, of New York, reported

A CASE OF OIDIOMYCOSIS (BLASTOMYCOSIS), THE EARLY LESIONS CLOSELY RESEMBLING GIANT-CELLED SARCOMA.

The patient, male, aged twenty-seven years, policeman by occupation, of unusual strength and physique (6 feet 3 inches in height; weight, 270 lb.), was in perfect health up to the 10th of December, 1906, when he was seized with an attack of severe pain in the lumbar region. Two to three days later he had severe pain in the dorsal region of the left foot, which became markedly swollen, and a few days later fluctuation developed. At the end of ten days a small sinus appeared between the great and second toes, from which exuded a dirty, pus-like fluid. A week later a similar lesion developed in the dorsum of the other foot, while in the outer aspect of the right thigh two small flat papillary tumors appeared in the skin itself. These were irregularly circular in shape, depressed in the center, with indurated edges slightly elevated. They quickly became covered with crusts which, on removal, showed pus-like material in the center. Five to six similar lesions, somewhat larger and more protuberant, shortly afterwards developed on the face and nose. Almost simultaneously with the appearance of the skin lesions there developed numerous subcutaneous tumors, widely distributed over various parts of the body, varying from the size of a hazel-nut

to that of a small egg. They always began subcutaneously, within the deep layers of the skin, appearing first as smooth, spherical tumors of moderately firm consistence, but slightly elevated above the level of the skin. After a few days they would grow rapidly in size, become much more protuberant and soon begin to show fluctuation. In a few days the entire tumor would seem little more than a thick-walled abscess cavity. If left to themselves, they usually broke after a week or ten days, discharging a cream- or chocolate-colored material. Coincidentally with the appearance of the first tumors, the patient developed a dry, hacking cough, which has persisted up to the present time. Two weeks after the beginning of the symptoms, one of the small subcutaneous tumors was removed for microscopical examination by a well-known pathologist, who pronounced it giant-celled sarcoma. The patient was admitted to Dr. Coley's service at the General Memorial Hospital on Jan. 23, 1907, a little over six weeks from the beginning of the disease. At this time there were altogether about twenty subcutaneous tumors in different parts of the body, in addition to the skin lesions already described. Jan. 25 Dr. Coley opened several of the subcutaneous tumors and Drs. Beebe and Tracy, of the Huntington Cancer Research Fund, made cultures from various media and inoculated several dogs and guinea-pigs. Before these cultures were taken, Dr. James Ewing made the diagnosis of blastomycosis from a slide of the tumors. This diagnosis was made from the peculiar formation of the giant-cells. At the end of about four days pure cultures developed of an organism which was at first regarded as blastomycosis. Similar subcutaneous lesions were produced upon dogs from pure cultures of the organism.

Numerous blood counts were made during the course of the disease; these were always a moderate leucocytosis, 18,000–30,000 increase in polynuclears and gradually diminishing hemoglobin.

By the 18th of April the patient had developed sixty lesions similar to those described throughout the body. Since then a very large number of new tumors has developed and the patient has become greatly emaciated, his temperature sometimes falls as low as 95° and he is not expected to live more than a few days. He has recently begun to raise a purulent-looking sputum in which the organism has been found. He has also had a purulent discharge from the rectum which has, likewise, shown pure cultures.

The clinical course of this case has been strikingly similar to that of coccidioidal granuloma, as reported by Philip King Brown, of San Francisco.[2]

DR. C. A. PORTER and DR. C. J. WHITE, of Boston, presented a paper on

A CASE OF MULTIPLE CARCINOMATA FOLLOWING CHRONIC X-RAY DERMATITIS.

This article reviews ten cases found in the literature on the subject, and presents in detail an additional case of the authors'.

They state that the clinical appearances of the chronic x-ray dermatoses suggest a precocious and extreme senility of the skin; that microscopic examination also shows the most extraordinary changes, always of a degenerative character, unequalled in their severity and chronicity by the effects of any other agent.

In view of these facts and the histories of the 11 cases reported, Dr. Porter has reached the following conclusions:

1. For the atrophic condition of the skin and the telangiectases nothing can be done.

2. Hypertrophic changes, keratoses and warts may, with safety, be treated in the usual manner. If such treatment fails, excision with or without skin grafting will probably relieve the pain and result in a cure.

3. Excision and grafting will prove to be the best treatment for recurrent fissures.

4. All ulcerations which, under ordinary treatment, remain open after three months, should be thoroughly excised and very carefully examined. The subsequent treatment, to be determined by the result of the microscopic examination, should be skin grafting, further excision and grafting or amputation.

5. As the history of almost all of these cases of severe and chronic dermatitis dates back to early exposure, with the protection which our present knowledge demands, it is to be hoped that the number of victims of too enthusiastic work in an untried field will steadily diminish.

6. In the meantime there is no hesitation in recommending the *early excision of all persistent x-ray ulcerations* in order that subsequent malignant degeneration may be prevented.

DR. STEPHEN H. WEEKS, of Portland, Me., contributed a paper at the meeting of the American Surgical Association, entitled

SOME CONSIDERATIONS IN REGARD TO BRAIN SURGERY.

His conclusions were as follows:

1. There are two essential preliminaries to any operation on the brain. The first is the diagnosis of the nature of the disease which is present and the second is the diagnosis of its location.

2. The most important landmarks upon the surface of the head by which certain motor and sensory areas are determined are the fissure of Rolando, fissure of Sylvius, the parieto-occipital fissure and the fissure of Bichet.

3. It has been determined by recent experiments and observations that the motor area is largely in front of the fissure of Rolando, and the sensory area is largely behind this fissure.

4. Each hemisphere controls movements on the opposite side of the body, but as the right hand is more generally used and is better trained than the left, this area is larger on the left hemisphere than on the right.

5. The speech areas are limited to the left hemisphere in right-handed persons, and to the right hemisphere in left-handed persons. The speech hemispheres are of four kinds: the motor speech area, the auditory speech area, the visual speech area; and the power of writing is a part of speech and is usually lost when the motor speech area is destroyed, but its exact location is not fully determined.

6. Operations may be performed for the relief of Jacksonian epilepsy, for the cure of imbecility, for the removal of clots, for the opening of abscesses, for the excision of tumors, for the relief of intracranial pressure with or without drainage of the lateral ventricles and for the cure of traumatic insanity.

7. Tumors of the brain, collected by Starr and other authors, show that in order of frequency they stand about as follows: tubercular gumma, glioma, cysts, carcinoma, syphilitic gumma, with a small proportion of fibroma. In all probability gummata, either of tubercular or syphilitic nature, are much more frequent than all the other varieties put together.

8. The question of anesthesia in brain operations is a very important one. My experience has been limited to general anesthesia. I have never made use of intraspinal injection of cocaine. Sir Victor Horsley uses chloroform altogether. He claims that ether causes, besides a rise of blood pressure, a notable increase of blood venosity, and therefore much additional and

[2] Jour. Amer. Med. Asso., March 2, 1907.

troublesome hemorrhage. Chloroform, on the contrary, causes a fall of blood pressure with less blood venosity. Sir Victor uses Mr. Vernon Harcourt's apparatus, by which the chloroform can be used in known quantities. The dose can be regulated by the movement of a hand on top. During the administration of chloroform there is generally induced a moderate degree of asphyxia which has the effect of raising the venous pressure, with an increase of oozing of blood. To relieve the asphyxia which causes the oozing, a stream of oxygen gas is directed through the air inlet of the Harcourt regulator which quickly relieves the asphyxia. The oozing of blood quickly stops as the color changes from dark purple to a bright scarlet.

9. Intracranial disease is liable to produce optic neuritis, which usually ends in total blindness. The optic neuritis is due to intracranial tension and is amenable to surgical treatment. In no case of optic neuritis should the process be allowed to continue after it has once been diagnosed. Blindness can be averted by opening the subdural space early in cases of intracranial disease. This operation can best be done in the basal temporal region of the right side, assuming that no attempt is made to attack the disease itself.

10. Shock may be in great part avoided by dividing the operation into two stages, the interval between them being about five days.

11. To avoid the danger of septic invasion, which is greater in operation on the brain and spinal cord than operation involving the abdominal cavity, the less drainage employed the better, and consequently every effort should be made to close the skin wound as early as possible.

Book Reviews.

The Muscles of the Eye. By Lucien Howe, A.M., M.D. In two volumes. Volume I, Anatomy and Physiology. New York and London: G. P. Putnam's Sons. 1907.

Dr. Howe states that the object of this study is: "To collect data relating to this subject, separating, as clearly as possible, demonstrated facts from statements based on theory, and to formulate these facts concisely in the simplest terms possible." A few mathematical statements have been retained, "either because they cannot be found elsewhere, or because they show the basis of other facts." In this first volume, which is a digest of an investigation carried through several years, it has been the intention to present what is known up to the present time about ocular muscles, from an anatomical and a physiological standpoint. Its opening chapter, besides being a very strong plea to the ophthalmologist to supplement his reading of standard textbooks by actual dissection, is found to be an excellent monograph on laboratory technique. It will likewise be noted that mention has been made of primary and secondary muscular insertion, the possibility of detecting a malposition of the lens by an ingenious modification of the ophthalmometer of Javal, the estimation of the lifting power of the adductors, and the measurement of lateral movements by photography. In part first, anatomical relations have been described quite thoroughly and convincingly, and in part two, the physiological problems have been discussed first, by considering the behavior of one eye while in a state of rest, afterwards while in action, although not actually in motion (accommodation), and then while in motion. The behavior of both eyes is then taken up and studied, first, in a state of rest, in order to determine the visual and vertical axes, and then, while in motion, by which it will be seen that the excursions of both eyes, while in motion, admit of classification into four groups of associated movements, under which headings the question of torsion, true and false, the laws of Donders and Listing and experiments with after-images have been carefully explained. As a result of this well sustained effort, Dr. Howe has come to believe that, considering the complexity of the subject, it is not amiss to emphasize as far as possible "the axiomatic truth, that thorough study of the anatomy and physiology of muscles is essential to a working knowledge of their pathology"; that, in order to clear up the confusion of ideas, more exact anatomical and physiological definition is necessary; and that, "physiologically it is necessary for us to distinguish the passive states (the 'phorias) from active conditions (the 'ductions)." There should also be a greater uniformity in the methods of making examination. Novel, but practical, and probably also original, is appendix C, in which will be found a list of thirty-five important ophthalmological periodicals, with tabulated information as to their distribution among twelve professional libraries at several medical centers. This volume contains four hundred and fifty-five pages of text, many illustrations of the subject matter, and also several biographies and photographs "of a few eminent students of the ocular muscles." W.D.H.

The Medical Student's Manual of Chemistry. By R. A. Witthaus, A.M., M.D., Professor of Chemistry and Toxicology in Cornell University. New York: William Wood & Co. 1906.

This standard work in chemistry has grown in comprehensiveness and size until it is no longer a manual, but rather an extensive treatise on chemistry. Repeated favorable mention has been made in this Journal as the five previous additions have been reviewed, and it seems fitting now to point out some of the changes which have taken place in this sixth edition.

The section on chemical physics and general chemistry has been entirely rewritten and brought up to date. That portion devoted to organic chemistry has been rearranged in the light of further information upon the relationships of substances, and it has been also somewhat extended. The greatest change noted is in the section on Physiological Chemistry which has been almost entirely rewritten and greatly enlarged.

We take pleasure in again recommending the work as a textbook and for reference.

THE BOSTON

Medical and Surgical Journal.

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THE MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

THE one hundred and sixteenth annual meeting of the Massachusetts Medical Society, held in Boston, last week, added another highly successful meeting to the many which have preceded it. Fortunately for the comfort of the physicians in attendance the weather was cool, in marked contrast to the usual condition at the time of this meeting.

The report of the Secretary, Dr. Francis W. Goss, showed that one hundred and seventy new members had been admitted during the year and that twenty-seven had died. Attention was drawn to the desirability of maintaining a high standard of medical education, and there was strong expression of opinion that the society should maintain such a standard. The management this year adopted the plan, which has been in successful operation for several preceding years, of reducing the number of formal papers and of substituting in part demonstrations of clinical methods. Although these demonstrations were not carried out in so great detail as when first instituted, they proved a valuable and instructive part of the meeting. There can be no question that this plan meets with the approval of the visiting physicians and that it should be continued from year to year as a regular part of the program. The usual exhibits were in evidence; particularly noteworthy among these were the Kaiserling pathological preparations from the Boston University School of Medicine and the Harvard Medical School.

Perhaps the most striking feature of the entire meeting was the attention given to the general subject of tuberculosis which reflects, no doubt, the general interest which the disease is exciting in the community at large. In the Shattuck Lecture Dr. F. C. Shattuck gave an admirable practical *résumé* of the present status of the subject and made a strong plea for further co-operation between physicians and various corporate interests. It is at least a comfort to realize, as Dr. Shattuck put it, that "the remedy is so simple as to be within the reach of the least intelligence and the most slender purse." Dr. J. F. Alleyne Adams, of Pittsfield, added to the discussion of the general subject in the annual discourse, in which he spoke especially of "The Segregation of Consumptives." The section meetings also took up the matter from a more technical standpoint and the after dinner speakers likewise found opportunity to make comment from their points of view. His Excellency Governor Guild was particularly emphatic in his expression of opinion.

The dinner was held as usual at one o'clock on the second and last day of the session and was very largely attended. The Glee Club under the direction of Dr. R. C. Cabot did its full share toward increasing the festivity of the occasion. Speeches were made by a number of men high in professional and civic life. Perhaps the most noteworthy of the after-dinner remarks were those by the Hon. Louis C. Southard on the subject of expert medical evidence. Mr. Southard first pointed out the evils which are sufficiently apparent to all, and perhaps particularly to physicians, who are often made the victims of the present system. The suggestion as to a remedy for the present somewhat unfortunate state of affairs has been made before, but must always appeal to the common sense of the average citizen, namely, that experts be appointed by the Court absolutely irrespective of one or the other side in the controversy. We trust that this consummation may not be long in coming, but, if the experience of the past is to be any criterion of the future, the opposition in influential quarters is sure to be determined. Other speakers were Governor Guild, the Rev. Dr. George A. Gordon, Dr. Joseph D. Bryant, President of the American Medical Association, and Dr. Frank G. Wheatley, of Abington, Mass.

ANAPHYLAXIS.

MANY new words find their way into the medical vocabulary from year to year. This one, "anaphylaxis," we owe to Richet (Compt. rend. Soc. biol., 1905.). It means an increased sus-

ceptibility to a substance shown by animals which have survived a small dose of this same substance. Guinea-pigs may receive a large dose of horse serum and the effect will be practically *nil*. Yet if instead they are given an inoculation of a very small dose, .0001 to .01 cc., of horse serum and then after ten days or two weeks receive a larger dose, 5 cc., of horse serum they have violent and characteristc symptoms and, as a rule, shortly die.

Gay and Southard (Jour. of Med. Research, 1907, xvi, 143) have very recently published from the laboratory of the Danvers Insane Hospital an interesting study of this reaction. They consider the hypersusceptibility to be due to the presence in the guinea-pig of a substance for which they suggest the name, "anaphylactin," which is not neutralized and not eliminated by the animal body. This anaphylactin causes a heightened power of cellular assimilation for other toxic constituents of the horse serum and so produces toxic symptoms when the second dose of horse serum is given. For the increased susceptibility to develop, an incubation period of ten to fifteen days is necessary, but once developed it lasts for a long time. If the primary dose is a large one, a much longer time is required for the development of hypersusceptibility, in other words there is a delay in the incubation period. There is no evidence that the anaphylactin increases in amount within the guinea-pig but simply persists.

The lesions produced by the toxic phase of this reaction are multiple hemorrhages, more frequent in the stomach, cecum, lungs and heart. These hemorrhages appear to be the result of extensive fatty changes in the capillary endothelium. Fatty changes also are common in many other cells as in the gastric epithelium and in the myocardium and voluntary muscle. Of particular interest is the rapidity with which these fatty changes take place, sometimes only a few minutes being required. At first thought this might seem impossible, but in the light of much of our present knowledge of so-called fatty degeneration this is not the case. We know that cells frequently contain extractable fat which at the same time is not visibly demonstrable by microchemical staining methods, and that visibly demonstrable fat may be present in large amount without the presence of an increased amount of extractable fat. In other words, it is very generally believed that, in part, the fat of fatty degeneration arises within the cell as the result of some physical or chemical change in fatty substances by which fat not previously visibly demonstrable appears in the form of fine demonstrable and stainable droplets. This change apparently takes place with very great rapidity in this serum disease of guinea-pigs as demonstrated by Gay and Southard, and there, as under many other conditions, a fatty change is no evidence of the chronicity of a process, an assumption not infrequently made.

AN EXPERIMENTAL STUDY OF THE ACTION OF COLEY'S MIXED TOXINS ON SARCOMATA.

The method of treatment of inoperable sarcomata by injections with the mixed toxic products of the streptococcus of erysipelas and the bacillus prodigiosus as introduced by Dr. W. B. Coley, of New York, has received extensive clinical application, frequently with very gratifying curative results. Among some, however, there has been a feeling of distinct skepticism as to the value of this treatment. New evidence of the favorable action of such toxins on sarcomata has been adduced, however, by the results of the animal experimentation of Drs. Beebe and Tracy, of Cornell University Medical College, reported before the Section on Pathology and Physiology of the American Medical Association at its recent meeting. These, added to the accumulating clinical reports, indicate a distinct curative action for these toxins, and especially emphasize the important rôle played by the bacillus prodigiosus toxin.

In dogs occurs naturally a tumor transmitted by a coitus and regarded by many as an infectious granuloma. Dr. S. P. Beebe has conducted a series of studies of these tumors by inoculating them from dog to dog. He regards them not as infectious granulomata but as tumors of the sarcoma group capable of transmission by inoculation as is true of mouse carcinomata. Transmissions by coitus he considers as an inoculation of the tumor into an abraded epithelial surface.

Dr. Martha Tracy has inoculated such dogs with mixed toxins and bacillus prodigiosus toxin alone. As a result she obtains a marked diminution in the size of the tumors and eventually their disappearance with a reaction similar to that following inoculation with the toxins in man. Frequently larger tumors break down and softened necrotic tumor material may be removed by aspiration. Dr. Tracy (Jour. of Med. Research, 1907, xvi, 307) has further shown the distinctly toxic action of substances contained in the bacterial cell of the bacillus prodigiosus,

one of which locally consists in the formation of an area of coagulation necrosis with surrounding inflammatory reaction.

This work of Drs. Beebe and Tracy is of very great interest in connection with the clinical work of Dr. Coley on the treatment of sarcoma. It indicates further the activity of a Cancer Research Commission directed toward improving the treatment of neoplasms, for this work was carried on under the auspices of the Huntingdon Fund for Cancer Research.

MEDICAL NOTES.

CENTENARIANS. — It is reported that Mrs. Catherine C. Langlands died in Newburyport recently at the age of one hundred and three. By birth she was a Scotchwoman.

Thomas E. Sauls died in Joplin, Mo., June 17, also at the reputed age of one hundred and three years. He took part in the Seminole, Mexican and Civil wars.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 19, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 52, scarlatina 37, typhoid fever 7, measles 77, tuberculosis 41, smallpox 0.

The death-rate of the reported deaths for the week ending June 19, 1907, was 17.15.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, June 15, 1907, was 210, against 190 the corresponding week of last year, showing an increase of 20 deaths and making the death-rate for the week 18.19. Of this number 101 were males and 109 were females; 205 were white and 5 colored; 138 were born in the United States, 68 in foreign countries and 4 unknown; 45 were of American parentage, 129 of foreign parentage and 36 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 41 cases and 4 deaths; scarlatina, 52 cases and 0 deaths; typhoid fever, 9 cases and 1 death; measles, 75 cases and 1 death; tuberculosis, 46 cases and 26 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 20, whooping cough 1, heart disease 10, bronchitis 5 and marasmus 8. There were 18 deaths from violent causes. The number of children who died under one year was 36; the number under five years 55. The number of persons who died over sixty years of age was 45. The deaths in public institutions were 77.

There were 10 cases and 5 deaths reported from cerebrospinal meningitis during the week.

THE BEVERLY HOSPITAL. — Beverly, Mass., is to have a new hospital. The new group of buildings will occupy an elevated position off Herrick Street, and will cost about $250,000.

DR. GEORGE F. JELLY HONORED. — Dr. George F. Jelly, of Boston, received the honorary degree of Doctor of Science at Brown University at its recent commencement exercises.

BEQUESTS. — It is reported that owing to the settlement of disputes regarding the will of the late Henry Mulliken, of Boston, Harvard University, Tuskegee Institute and the Waltham Hospital will each receive about $300,000, the division of property to be made after three years.

ACCIDENTS OF THE SEVENTEENTH OF JUNE. — Bunker Hill Day is likely to prove a rival to July Fourth as regards accident, if this year is to be taken as a criterion. Upwards of one hundred were more or less seriously hurt, some of whom have lost fingers and hands. The accidents in general occurred from the careless use of firearms and explosives.

AN EPITAPH: STONE IN THE BLADDER AND ON THE TOMBSTONE. — The following epitaph was copied from an old tombstone in the cemetery at Rocky Hill, Conn. It reflects the surgical situation in the time of the Revolutionary War.

Edmund Barnes Son of
Mr. John and
Mrs. Esther Barnes
who passed the Painful Operation
of Cutting for
The Stone in the Bladder
March 3, 1779 and died
on the 23d, In the 10th
year of his age.

ANOTHER EPITAPH: Copied from an old tombstone in the Groton, Mass., Burying Ground, June, 1907.

Here lies the body of
Silas Barron
son of
Mr. Silas Parker Barron
and Mrs. Abigail, his wife,
who died of the 108
convulsion fit.
Aug. 7. A.D. 1766.
aged 3 wk. 1 da.

NEW YORK.

Fellowships of Alumni Association of College of Physicians and Surgeons. — At the commencement of Columbia University, on June 12, the two fellowships of the Alumni Association of the College of Physicians and Surgeons, of the value of $500 each, for scientific research work in anatomy, physiology or pathology were awarded respectively to Dr. Hermann von S. Schulté, for research work in anatomy, and Dr. Wilbur Ward, for research work in pathology. This is the second time that this fellowship has been won by Dr. Schulté, who is connected with the department of anatomy in the Columbia medical school. The Alonzo Clark Scholarship, to promote the discovery of new facts in medical science (annual value about $600), was awarded to Dr. Augustus B. Wadsworth.

First Medical Lectures in New York. — The first medical lectures in King's College (afterwards Columbia) were given in a course on anatomy delivered in 1763 by Dr. Samuel Clossy, a graduate of Trinity College, Dublin. Four years later Dr. Clossy and five other physicians laid before the governors of the college a proposal to institute within it a school of medicine, and offered to give courses of lectures on the various branches of medical science. On Aug. 14, 1767, the board of governors voted to establish the medical school and to appoint these six physicians as professors in it, and by this action King's College founded the second school of medicine in America. It was only two years earlier that the medical school in Philadelphia, which was the forerunner of the University of Pennsylvania, was established.

Special Observance at Closing Exercises of College of Physicians and Surgeons. — The College of Physicians and Surgeons celebrated its one hundred and fortieth anniversary with a special observance in connection with the closing exercises of Columbia University, of which it is the medical department. On June 10 the graduates inspected the laboratories and museums and attended clinics at the Roosevelt and other hospitals, and in the evening there was a smoker at the Columbia University Club. On June 11, in the afternoon, a University conference was held, at which President Nicholas Murray Butler gave the address of welcome, Prof. John G. Curtis delivered an address on the history of the medical school and Prof. William H. Welch, of Johns Hopkins University, one on medicine. In the evening a banquet was given at Delmonico's by the Alumni Association of the school. Dr. Timothy M. Cheesman, president of the association, was the toastmaster, and addresses were made by President Butler, the Rev. Dr. Aked, recently of Liverpool, George L. Rives, president of the board of trustees of Columbia, Dr. Samuel Lambert, dean of the College of Physicians and Surgeons, and Dr. Thomas Darlington, president of the Health Department. On this occasion Dr. L. Bolton Bangs, chairman of the prize essay committee, aunounced that the Cartwright Prize of the Alumni Association had been awarded this year to Dr. R. M. Yerkes, of Cambridge, Mass. The essay which won in this competition bore the somewhat curious title: "The Physiology of the Senses and the Behaviour of the Dancing Mouse."

Installation of Mechano-Therapeutic Apparatus. — Through the efforts of Dr. Charles H. Jaeger, instructor in orthopedic surgery in Columbia University and attending surgeon to the orthopedic department of the German Hospital and Dispensary, a complete system of mechano-therapy has been inaugurated in the new Anna Ottendorfer Dispensary building of the hospital. On June 11 a private inspection of the apparatus was given, and Dr. Jaeger made an informal address, which was in part as follows: "It seems strange that the practice of medicine confines itself to the curing of the disease, and entirely omits thorough regular systematic exercises to achieve a restoration of the normal functional activity. As soon as a wound is healed the patient is discharged from the hospital, though the hand, foot, leg, or whatever other part to which the injury may have happened, is stiffened and useless. It is left entirely to the will of the patient or to the efforts of a more or less capable masseur to restore the part to its normal condition. Of course, the masseur is within the reach of only the rich man, while the poor man, who most needs a quick restoration of his physical abilities, is left to his own ill-directed efforts. These machines have been so planned that there is not a joint or muscle in the entire body which cannot be exercised; the idea being, not to develop strength, but to secure a return to the normal condition. The system might be termed medical gymnastics, by means of which any one who has suffered from a fracture or injury which has disabled a joint or set of muscles can have the part restored to full working capacity." Dr. Jaeger went on to say that America was the only large nation in which these machines were not

now being used in its public hospitals. In Germany, where the plan originated, they were considered a necessary part of their plant in 265 public hospitals and 33 military hospitals, while they were also employed by 15 universities and 28 trade unions. Even where patients were able to obtain the services of masseurs, the experience which had now accumulated justified the estimate that these machines reduced the period of convalescence about 50%.

MORTALITY IN MAY. — That an unusually late and cold spring need not be an unhealthy one is again demonstrated by the Health Department statistics for May. During that month the reports show that the mortality in the city represented an annual death-rate of 17.49, while in May of last year, an average season as regards temperature, the death-rate was 18.53. The corrected rate, excluding non-residents and infants under one week old, was 16.59. It is noteworthy that there were exactly the same number of deaths, 30, from cerebrospinal meningitis in the corresponding week of last year. In the following week of 1906 the deaths declined to 17, and in this week of the present season to 21. In May there was one death from smallpox. This and two deaths in April have been the only fatalities from this disease reported in the city for many months.

Current Literature.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. MAY 25, 1907.

1. REED, C. A. L. *Medical Legislators of Two Republics.*
2. *HALLBERG, C. S. N. *The External Preparations of the United States Pharmacopeia.*
3. HEKTOEN, L. *Iso-agglutination of Human Corpuscles with Respect to Demonstration of Opsonic Index and to Transfusion of Blood.*
4. *BULKLEY, L. D. *Danger Signals from the Skin.*
5. *BABCOCK, W. W. *Transbrachial Anastomosis.*
6. EDMUNDS, C. W. *The Standardization of Cardiac Remedies.*
7. SHOEMAKER, J. V. *Endemic Typhoid Fever from Infected Milk.*
8. *HASTINGS, T. W. *The Estimation of Hemoglobin Content of Blood with Modern Instruments.*
9. COHEN, M. *Report of a Case of Amaurotic Family Idiocy.*
10. *JACKSON, C. *Thymic Tracheostenosis, Tracheoscopy, Thymectomy, Cure.*

2. Hallberg calls attention to the principles adhered to in the revised pharmacopeia, which should govern the choice of vehicles in preparing ointments. Vehicles belong to three classes: (1) non-penetrative substances, simply protective, such as vaseline, or petrolatum, (2) semi-penetrative substances, such as lard and olive oil, used in emollient or astringent preparations, and (3) penetrative or absorptive substances, such as lanolin, to be used in ointments applied to produce constitutional effects.

4. Bulkley protests against the common tendency to regard diseases with their chief manifestations in the skin as diseases of the skin only, without constitutional significance. Contrary to this belief are the facts that the function of the skin is important to the health of the body, and that in the exanthemata, and also in other conditions, the cutaneous eruption is but an incident in a general morbid process. In syphilis the eruption is the most positive diagnostic sign, but when this has disappeared it is wrong to suppose, as many patients and some physicians assume, that the disease has been overcome. Eczema often proves to be a first sign of nervous or other disorder. Acne also is often the result of faulty hygiene; it is extremely often associated with some disorder of the sexual apparatus. Urticaria, pruritus, boils and carbuncles, purpuric eruptions, erythema nodosum and the pigmentation of Addison's disease, all illustrate the importance, in dealing with the diseases of the skin, of an appreciation of their intimate connection with general constitutional conditions.

5. Babcock reports the case of a four-year-old boy with paralysis and wasting of the right arm and shoulder, the only motor power remaining being a slight extension of the wrist and pronation of the hand. Sensation was not impaired. After reviewing the various possible operations for relief and finding most of them impracticable, it was resolved to attempt an anastomosis with the brachial plexus of the opposite side. The patient being under ether, the right brachial plexus was exposed from a point just above the clavicle to the region where the nerve trunks emerge from between the scalenus anticus and medius muscles. The sixth cervical nerve seemed specially wasted and atrophic. It was divided in half close to its point of emergence and by delicate dissection half of the nerve trunk was isolated from above downward. This separation was carried into the adjacent anastomosing nerve trunks, and in this way two nerve cords of fair size were separated down to a point slightly above the clavicle. The left brachial plexus was then exposed, the prolongation of the sixth cervical nerve was divided nearly in half close to the clavicle, and a bundle of nerve fibers about two inches in length was isolated by splitting the nerve trunk from below upward. A small transverse incision was then made above the suprasternal notch, and canals were bluntly tunneled through between the anterior muscles of the neck and trachea, connecting the lateral with the median incisions; the free ends of the separated nerve bundles were gently brought through into the median incision and united, end-to-end, by fine chromicized catgut, thus forming a nervous bridge between the two brachial plexuses, having a central attachment on the left and a peripheral one on the right side. The union was reinforced by forming a partial fascial sheath about the point of nerve union, and all three wounds were carefully closed in layers without drains. Following the operation there was some tenderness along the nerve trunks of the right arm, which gradually subsided. No disability or nerve disturbance was seen at any time in the left arm. In three weeks there were signs of returning power in the right hand. In February, 1907, three and a half months after the operation, the improvement was far beyond expectations. The nutrition of the arm was good and it had increased in circumference. Extension, previously limited to the wrist, was possible in all the fingers, the child could partially flex the wrist and all the fingers and thumb, and adduction and abduction of all the digits had been gained. Pronation of the hand remained, and there was some power of supination. The shoulder drop had disappeared and the shoulder could be elevated and carried forward or backward at will; there was excellent power of rotation, especially inward rotation. Marked development of the scapular and pectoral muscles and of the trapezius had occurred, but the paralysis and atrophy of the deltoid and upper arm muscles persisted. The child could support its body against the extended arm, and used the hand constantly to grasp things and to aid the other hand. While the splitting of the nerve trunks probably helped by relieving tension and possibly by favoring new adjustments of the fibers, Babcock is inclined to consider the formation of new nerve paths from the left into the right brachial plexus the chief factor in the restoration of function in this case. This preliminary report is, therefore, offered to prove the technical practicability of transbrachial anastomosis, and to suggest the desirability of a more extended trial of the method in certain cases of brachial palsy not amenable to treatment by milder measures.

8. Hastings discusses the various instruments used to

estimate the hemoglobin-content of blood and their relative merits. The Fleischl-Miescher instrument, he concludes, is the most reliable. Sahli's instrument is preferable in theory and the most reliable when the solution with which it is filled is properly standardized, but in many instruments obtained at retail the solution is not correct. Dare's instrument, of which, however, only four examples were studied, gave excellent results except in cyanotic or plethoric patients. The Tallquist scale is condemned as worthless for quantitative results.

10. Jackson reports a case of thymic asthma in which he was able to see, through the tracheoscope, that the trachea was compressed from before backward so as to interfere with respiration. This is the first time that this phenomenon has been directly observed; many writers have denied the possibility of its occurrence, although no other explanation has been found for cases of sudden death in children with symptoms of respiratory obstruction in which at autopsy nothing abnormal has been found except a large thymus. In Jackson's case the enlarged thymus was demonstrable by the radiograph. Following the withdrawal of the tracheoscope from the tracheotomy opening the child was entirely unable to breathe, and for four weeks until operation was possible he breathed only through a long tracheal canula which passed down nearly to the bifurcation. The thymus was finally removed at operation by a transverse incision above the sternum, through which the finger was passed down into the mediastinum, the child being etherized through the long tracheal canula, without which the operation probably could not have been performed. This canula was removed on the eighth day. There was never the slightest stridor after the thymectomy; three months later the boy was in good health and well nourished. [F. W. P.]

JUNE 1, 1907.

1. SENN, N. *The Final Triumph of Scientific Medicine.*
2. WYMAN, W. *The March of Sanitation.*
3. *EDEBOHLS, G. M. *Exploration and Decapsulation of the Other Kidney before Completing a Nephrectomy.*
4. *VOORHEES, I. W. *Erythromelalgia.*
5. KELLY, H. A. *Bimanual Vibratory Palpation.*
6. *MAYO, W. J. *Radical Cure of Umbilical Hernia.*
7. HERZOG, M. *Three Cases of Extensive Multiple Keloids in Chinamen, following the Habitual Hypodermic Use of Morphin.*
8. HATCHER, R. A. *Isopral and Hydrated Chloral.*
9. *BURR, C. W. *Paranoia, Its Varieties and Medicolegal Importance.*
10. DEADERICK, W. H. *The Pathogenesis of Hemoglobinuric Fever.*

3. Edebohls urges that in all cases before a kidney is excised the other kidney should be explored through a lumbar incision and decapsulated. The reasons for this are (1) the necessity of determining with all possible care the existence of one sound kidney, and (2) the increased capacity for functional activity of the kidney which he believes to result from decapsulation. In 460 patients Edebohls has found 3 who had only one kidney.

4. Voorhees treats at some length of the theories of erythromelalgia and describes what is known of its symptoms and treatment. He is inclined from his investigation of the subject to agree with Lewis and Benda, that it is not a distinct disease entity, but is a symptom-complex that may have either a central or a peripheral origin, and, with Eulenberg, would put it in the same class with Raynaud's disease, as simply different phases of the same condition, the one being dependent on undue dilatation of the terminal arterioles and the other on an undue contraction of the same. They have been observed in the same patient by different observers, and there is not the slightest doubt, Voorhees says, that they exist together as symptoms of some marked pathologic state, and notably in that disease of the blood vessels known as arteriosclerosis. Treatment has generally been ineffective, and he considers that in intractable or specially distressing cases, even recourse to surgery would be advisable.

6. Mayo describes his overlapping from above down method of operation for the relief of umbliical hernia, by which he finds the largest protrusions can be satisfactorily reduced and the hernial opening closed without tension. The tendinous aponeurotic structures involved are among the strongest in the body, and when overlapping is accomplished the resistance is nearly perfect. The sutures merely maintain the structures in apposition, while the intra-abdominal tension itself prevents displacements. The operation is simple. Two transverse elliptical incisions are made, cleanly exposing the neck of the sac and the aponeurotic structures for several inches above and below it. The neck of the hernial protrusion is cleared as high as the aponeurotic structures extend, the sac is then opened and any contained intestine returned into the abdomen. The contained omentum, if any, is ligated in sections on a level with the abdominal orifice and the stumps returned into the abdomen. The sac, with all adherent omentum, including the skin, is cut away without further manipulation. A stout curved needle threaded with strong celluloiden linen is passed from without in through the aponeurotic structures and peritoneum from two to three inches above the margin of the opening. A large tablespoon to guard the needle as it enters the peritoneal cavity is a valuable aid. The needle and thread are drawn down and out of the hernial opening. A firm mattress stitch is then caught in the upper edge of the lower flap about one fourth of an inch from the margin, the needle is then carried back through the hernial opening into the peritoneal cavity and made to emerge one third of an inch lateral to the point of original entrance. On each side of this is introduced a similar mattress suture of strong chromicized catgut. These three sutures are drawn tight, pulling the entire thickness of the aponeurotic and peritoneal structures behind the upper flap. The margin of the upper flap is now retracted to expose the suture line, and what gaps exist are closed with catgut sutures. The upper flap is now sutured to the surface of the aponeurosis below by continuous chromicized catgut suture and the skin and superficial fat closed. The patients are kept in bed for from twelve to twenty days. It is thirteen years since this operation was first performed, and of the 88 patients operated on between 1894 and 1905, 75 were traced. One had a partial relapse described by her physician as a boa-shaped stretching at the site of the former operation, but giving no inconvenience. Another patient supposed to have suffered a relapse was operated on and a second opening found to exist above and lateral to the umbilical opening which was found closed. The operation is illustrated.

9. Paranoia, according to Burr, is one of the degenerative insanities; he has never met with a true paranoiac with a reliable family history who did not show some ancestral defect, and he never knew a boy or girl of biologically good family history to develop the disease. Its essential symptoms are intense egotism, delusions of persecution and of grandeur which are always systematized and always reasoned about, absence or perversion of the moral sense, and an apparently strong but really weak intelligence. Minor symptoms are hallucinations, falsifications of memory and sexual perversions. A negative symptom of importance is the absence of signs of physical disease of either the central nervous system or of the abdominal or thoracic viscera. Anatomic abnormalities, the so-called stigmata of degeneracy, according to Burr, are not more frequent than in the general population, though individual patients sometimes show many marked signs. Although in the majority of cases the patient is not recognized as actually insane till some time between the twenty-fifth and thirty-fifth years, the onset is really a slow one. There is a prodromal period of years and the abnormal beginnings are apt to appear at puberty or during adolescence, in change of character and disposition, etc., and finally, usually in the twenties or early thirties, marked signs of insanity appear as delusions of suspicion and of importance, largely determined in their nature by education and environment. Those of persecution usually come first and those of grandeur are used to explain the persecution. Whatever the delusion may be, it is reasoned about, and the reasoning, though faulty, superficially may appear logical. Almost always there is some slight truth used as a basis of the delusion and the plausible patient may sometimes impose on kind-hearted persons so as to lead them astray. The delusions are permanent, lasting for years till the mental feebleness becomes marked. From the start there is mental weakness, but not a true dementia till very late. There is a steady deterioration of the moral sense that may lead eventually

to criminal acts. Burr distinguishes between the paranoiac and the mattoid; the latter he defines as the imbecile dreamer of great dreams without power of accomplishment. The recognition of paranoia is not always easy because many cases are not typical, and some are merely aborted and fragmentary. There is a wide borderland and many inhabit it. Some men of genius present evidences of partial paranoia, some of them have been distinctly delusional. There is, unfortunately, also what is called secondary paranoia, though in these cases there is a stronger element of dementia, and hallucinations play a more important part. Some instances of the so-called paranoid type of dementia precox, Burr thinks, may be and probably are, very rapid cases of true but atypical paranoia. In conclusion he speaks of the medicolegal importance of the disorder, and says that the physician's duty in court cases is simply to discover the mental condition of the patient; the questions of responsibility, competency, etc., are for the judge and jury to decide. [F. W. P.]

MEDICAL RECORD.

MAY 25, 1907.

1. *SCHADLE, J. E. *The Antrum of Highmore as an Etiological Factor in the Production of Hay Fever (so-called).*
2. *TURCK, F. B. *A Clinical View of Ulcer of the Stomach.*
3. *MCWILLIAMS, C. A. *A Method of Reducing Old Colles's Fractures; Stiffness Following Apparent Contusions of the Elbow.*
4. BROOKS, H. *A Study of Blood Pressure in Compressed-Air Workers.*
5. WRIGHT, H. W. *Popular Education in Matters Medical.*
6. VALE, F. P. *Inaccuracy of Dare's Hemo-alkalinometer.*
7. *REID, J. J. *The Use of Pilocarpine for the Relief of Pruritus, Especially in Regard to Pruritus Vulvæ.*

1. Schadle advances the theory that catarrhal sinusitis of the antrum of Highmore is an important etiological factor in the causation of hay fever and some of the commoner forms of catarrhal disease of the nasal tract. The author deals with investigations of a considerable number of cases of the disease accompanied by the catarrhal form of disease of the antrum. The affection does not occur in persons in whom the *ostium maxillare* is of the normal very small size, but in those in whom disease, malformation or injury has made the antrum opening of sufficient size to admit germs to the interior of the cavity. Under normal conditions the opening is for purposes of ventilation only, and the cavity is sterile, the opening being securely protected by the tissues and hard to reach. The nervous supply is very abundant and communicates with that of all parts of the nasal cavities. The peculiar exciting causes of hay fever, dust, pollen, etc., enter the antral cavity and there produce irritation. Hay fever is a neurosis and occurs in persons in whom there is an idiosyncrasy against certain elements. But it is not a nervous disease alone, independent of local irritations. The author has treated ninety-one cases of hay fever and rose cold of varying degrees, by washing out and medicating the antrum, and has obtained the best of results in nearly all cases treated. Only one was unbenefited. Most of them were entirely cured in from one to two weeks, and remained so.

2. Turck records a series of experiments on animals by which he determined that gastric ulcer is not a local but a general condition, and is induced by alterations in the pabulum of the intestinal flora, which lower the resistance of the gastric or intestinal mucous membrane, rendered peculiarly vulnerable by malnutrition, defective metabolism, and other elements. Diagnosis is never easy. Prognosis is better than formerly, provided diagnosis is early enough to hope for correction of the bad general condition. Treatment demands rest, sometimes in bed until the pressing symptoms of pain, anorexia and flatulence are removed. First rest the stomach by abstinence from food for twenty-four hours, and then feed with food that will be most easily digested and will furnish as little as possible of material for bacterial action. Milk is one of the best. Meat macerated and then well boiled is another. Milk must be coagulated with rennet. Peristalsis may be excited by mineral waters containing carbonic acid, or injections into the rectum of alternate hot and cold water.

3. McWilliams considers the possibility of improving the position of the fragments in cases of Colles's fractures which have gone for some time unrecognized, and have become consolidated in bad position. In some cases disability is slight and it is better to let things alone. In others it seems necessary to do something to improve matters. The author uses for refracturing the bones a large engineer's monkey wrench with the blades well padded. This is used to immobilize the upper fragment, resting against the projecting edge of the lower fragment. Thus a fracture in the line of the original injury may be produced with the expenditure of very little force. There is no strain on the structures of the wrist, and the injury to the tendons is very slight. Traumata at the elbow joint, which are treated for sprains, sometimes develop stiffness later, on account of the formation of new bone within the joint, as a result of a fragment of periosteum getting into the joint and producing bone, which is so placed as to be between the ends of the bones. Usually forced persistent passive motions will crowd away the fragment of bone to the side of the joint so that it does not interfere with motion.

7. Reid says that the value of pilocarpine in the treatment of pruritus vulvæ and other forms of this affection has not received the recognition it deserves. The pilocarpine is to be used for this purpose in doses of from one-eighth to one-quarter grain. [F. W. P.]

JUNE 1, 1907.

1. *CLEAVES, M. A. *The Physiological Action of Pancreatic Enzymes, with Special Reference to Hematology, Urinology and Clinical Pathology.*
2. GOULD, G. M. *Eyestrain and Other Diseases Due to Crossing, Crowding and Damming of the Retinal Vessels.*
3. *TALBOT, E. S. *Acid Intoxication or Acidosis; a Factor in Disease.*
4. FANONI, A. *A Case of Intestinal Obstruction Due to Persistence and Anomaly of the Urachus.*
5. BANGS, L. B. *A Comment on the X-Ray as Applied to Prostatic Enlargement.*

1. Cleaves's article is a discussion of the use of pancreatic enzymes in the treatment of malignant tumors. The writer believes that the treatment is of value and should be used in every case as an adjunct to surgical treatment. She cites 5 cases in which the treatment was used, which, though suggestive in some instances, are not conclusive from possibility of errors in diagnosis. The method of administration and dosage of trypsin and of amylopsin are given. Contrary to the opinion of Graves, the writer believes that more marked action can be produced by trypsin in the circulation than by trypsin injected into the tumor mass. The febrile reaction, the so-called tryptoglycogenic reaction with eosinophilia, the local reaction of the tissues and the constitutional and circulatory changes which follow the injection of trypsin are described in detail.

3. Talbot in investigating the cause of erosion of the teeth has collected tests of the total acidity of the urine of a large number of patients. He believes that excessive acidity of the urine is a cause of interstitial gingivitis and an indication of faulty metabolism. [F. W. P.]

NEW YORK MEDICAL JOURNAL.

MAY 25, 1907.

1. *KNOPF, S. A. *Aërotherapy in Cold Weather.*
2. OGILVY, C. *The Results of Excision of the Hip in Tuberculosis of the Joint.*
3. TALMEY, M. *Corneal Burn by Direct Flame.*
4. *POLLITZER, S. *Serum Therapy and Serum Diagnosis in Syphilis.*
5. VAN SLYKE, L. L. *Some Points on the Chemistry of Milk.*
6. GILBRIDE, J. J. *Remarks on Congenital Stenosis of the Pylorus.*
7. SHELMERDINE, E. K. *Cream and Whole Milk Calculation.*
8. BIERHOFF, F. *Report of a Case of Melanuria.*

1. Knopf's article is a careful description, full of valuable detail, of the ways in which outdoor life day and night can be made possible in cold weather. Statistics show that

tuberculous patients in sanatoria do better in winter than in summer, and where proper facilities are provided nearly all prefer to sleep out of doors even in the coldest weather. Through the day the patients are given the rest cure in reclining chairs, rest alternating with short walks, drives or mild exercise in suitable cases. Respiratory exercises are strongly advocated. But perhaps the most important feature of aërotherapy is the sleeping out of doors. A number of forms of verandas, shades and lean-tos for sleeping quarters of tuberculous patients are described and shown in photographs. Knopf's own invention, the window-tent, is described very minutely. The arrangement of beds and bedding and the patient's dress at night are also shown. Warm dressing-rooms should be provided, and at all times clothing and bedding, helped out by hot water bottles and heaters, sufficient to prevent all discomfort from cold. The outdoor treatment should be begun gradually, with short periods in the fresh air at first. There need be no fear of "catching cold" in the process. In obviously hopeless cases, however, outdoor treatment should not be attempted against the patient's wishes, and in any case if the patient gets chilled or is kept awake by the cold, the treatment should be relaxed and resumed later by more gradual stages.

4. Pollitzer summarizes the work of various bacteriological investigators, notably Wassermann, Neisser and Bruck, in obtaining a method of serum diagnosis for syphilis. The principle upon which this is based is that of detecting "anchoring of the complement" in mixtures of suspectedly syphilitic serum, inactivated by heat, with normal blood as complement and extracts of syphilitic lesions taken as antigens. An explanation of the theory of the interaction of complement, immune body and antigen is concisely given in the article, and to it those unfamiliar with it are referred, since the subject is too complicated to be described in full in this abstract. For present purposes it will suffice to say that the complement of normal blood ceased to be active when mixed with the serum of monkeys inoculated with syphilis and extracts of syphilitic tissues. That this was the result of the presence of syphilis in the monkeys whose serum was used was proved by variously modified controls. This reaction is therefore regarded as specific for syphilis, showing when positive that both syphilitic antigens and syphilitic immune bodies are present. The method and findings of Wassermann and his associates have been corroborated by Schültze. Some work has been done in testing cases of general paresis and tabes by this method. As yet the procedure is hardly established, but promises much.

[F. W. P.]

JUNE 1, 1907.

1. *EWING, J. *The Morphological Diagnosis of Pathogenic Protozoa.*
2. *BREWER, G. E. *The Pathology, Diagnosis and Treatment of Acute Unilateral Septic Infarcts of the Kidney.*
3. FRIDENBERG, P. *Pyocyaneus Ulcer of the Cornea.*
4. *CABOT, H. *Diagnosis of Tumors of the Bladder.*
5. CORNELL, W. S. *Eyestrain in School Children.*
6. WAINWRIGHT, J. M. *The Scranton Typhoid Epidemic.*
7. LANE, C. B. *Modern Methods of Improving the Milk Supply of Cities.*
8. WALBURN, L. E. *A New Saccharimeter.*

1. Ewing calls attention to the fact that in spite of the plainness with which all protozoa now known are visible, there is great difficulty of identification and explanation of cellular degenerative products which may resemble them. The existence of these cell degenerations is so confusing that before any supposed parasite of disease can be accepted, not only morphological but also collateral evidence must be shown to be in accord with the characteristics of the disease. In variola, in scarlet fever and in measles certain bodies are found, some of which have been supposed to be parasites and causes of disease, but since they cannot be positively identified as protozoa and since collateral evidence is not in favor of a parasitic origin for these diseases, these bodies cannot be accepted as pathogenic parasites. In rabies the Negri bodies are specific of the diagnosis of the disease, and their occurrrence in the disease is not notably inconsistent with the possibility that they may be parasites and the cause of the disease, but even these are doubtful. Many bodies have been described in cancer, but the collateral evidence is almost conclusive against the protozoan origin of malignant neoplasms.

2. Brewer reports cases of a condition described by him in a previous paper,— acute unilateral septic infarct of the kidney. The unilateral occurrence of the disease is probably due to diminished resistance in one kidney from trauma, calculi or other conditions of disease. The infection is probably from bacteria in the blood current which would under ordinary conditions pass out through the kidney without producing lesions. The disorder begins acutely with high temperature and sometimes chill, with more or less pain and tenderness in the region of the affected kidney. The presence of albumin, blood and pus in the urine may be obscured by abundant secretion from the other kidney. The one pathognomonic sign is marked unilateral costovertebral tenderness. In treatment, severe cases require nephrectomy, milder cases decapsulation, and the mildest type expectant treatment. Of 13 severe cases 5 treated by nephrotomy and drainage all died, and 8 treated by nephrectomy all recovered.

4. Cabot urges early resort to modern methods of examination of the bladder in all cases in which there is cause to suspect tumor. If this were done it would be possible to prevent too extensive growth, infection and compression of ureters. A transient, painless hematuria should not be allowed to pass undiagnosticated; impediment to micturition, pain, frequency and pyuria may also be present, but all of these symptoms are met in other diseases as well. Many symptoms and signs supposed to be of diagnostic importance are unreliable and often directly misleading. Our main dependence should be upon rectal or vaginal examination, and upon cystoscopy; these methods will almost inevitably lead to a correct diagnosis.

[F. W. P.

THE PRACTITIONER.

MAY, 1907.

1. GIBSON, G. A. *Further Observations on Heart-Block.*
2. CARLESS, A. *Some Fractures about the Elbow Joint.*
3. *YEO, I. B. *On the Use of Opium in Acute and Chronic Diseases.*
4. STOCKMAN, R. *The Indication for the Use of Opium in Acute Disease.*
5. DIXON, W. E. *Chronic Morphinism with Special Reference to Treatment.*
6. *NEILD, N. *Hypertrophy of the Pylorus in Adults and Its Treatment by Opium.*
7. SANDIFER, H. S. *On the Indications for the Use of Opium in Acute Disease.*
8. BONSFIELD, A. *Opium in Acute Diseases.*
9. ARMOUR, D. *A Review of Recent Neurological Surgery.*
10. PERKINS, J. J. *Review of the Diseases of the Respiratory Tract.*
11. MUMMERY, P. L. *The Causes of Pruritus Ani.*
12. HICKS, H. T. *Uterine Curettage.*
13. SIKES, A. W. *On Some Affections of the Gastro-Intestinal Tract in Gouty Subjects.*

3. Yeo speaks in general on the various indications for and against the use of opium and its derivatives. He believes that the hypodermic syringe with morphine is far too frequently used and crude opium not enough. He disapproves of the use of any form of opium in cardiac disease, inflammatory or valvular, and especially in myocarditis.

6. Neild writes on the subject of the motor-neurotic form of pyloric hypertrophy. He advises against surgical treatment, but speaks enthusiastically of good results with opium. Without this drug medical treatment can do little for the condition.

[J. B. H.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT, NO. 17.

APRIL 23, 1907.

1. *ESSER. *The Etiology of Rachitis.*
2. BRAND, E. *The Practical Significance of Reducing Substances in Milk.*
3. *LIEFMANN, H. *The Apparent Aërobic Growth of Anaërobic Bacteria.*
4. FABRICIUS, J. *The Operative Treatment of Femoral Hernia.*

5. *FREUND, R. *The X-ray Treatment of Exophthalmic Goiter.*
6. *REICHE, F. *A Case of Membranous Laryngitis Due to the Bacillus Fusiformis.*
7. *GREGOR, A. *A Case of Drug Eruption with Violent Constitutional Symptoms.*
8. LANGE, F. *Artificial Ligaments of Silk.*
9. OTTOLENGHI, D. *Blood Plates Considered as Producers of Alexins.*
10. SCHWAB. *Further Remarks on Testing the Coagulability of the Blood.*
11. PEIPERS, F. *The Climate of Tenerife and its Indications.*

1. Esser believes that overfeeding constitutes the chief cause of rachitis. His reasons for this are the following:

(1) The blood picture in overfed infants who are not subjects of rachitis is similar to that of rachitis, both conditions showing blood findings that indicate irritation of the bone-marrow.

(2) A history of overfeeding is always to be obtained in rachitis, whether the infants are breast or bottle-fed.

(3) Numerous domestic animals, and wild animals in a state of confinement, show changes in the bone identical with rachitis; and overfeeding is certainly present here.

(4) The author's experiments on overfed animals, with careful control, showed bony changes analagous to those of rachitis, hyperemia of the marrow, increase of the zone of cartilage-proliferation, irregular endochondral ossification and increased formation of osteoid tissue.

(5) The occurrence of rachitis may be prevented, even in the children of rachitic parents, by the use of a proper diet. Esser's theory of the etiology of rachitis is that overfeeding stimulates in some unknown way the bone marrow, and that in infants predisposed through heredity, recent diseases, etc., the bone marrow gives out and the changes characteristic of rachitis take place.

3. Tarrozzi and others have shown that sterile pieces of various organs, or their extracts, if added to liquid media,will enable anaërobic bacteria to grow in such media although air is not excluded. Liefmann shows conclusively that such growth is possible because reducing substances that are present in the organs take up the oxygen; the growth is therefore strictly anaërobic after all.

5. Freund has obtained relief of the symptoms, and sometimes apparent cure in 5 cases of exophthalmic goiter by the use of the x-ray. A reduction in size of the goiter with increase of body weight took place in all cases.

6. Report of a case of Plaut-Vincent angina confined to the larynx, the first in the literature with this localization. Interesting points are the presence of fusiform bacilli *without* spirilli, and the development of paralyses of accommodation and of the lower extremities. Diphtheria as the cause was carefully excluded.

7. After the administration of 2 doses of 2 gm. each of chloral in Gregor's case, there was seen a rash consisting of macules, papules, petechiæ and blebs; also conjunctivitis, bronchitis, edema of the eyelids, fever and stupor.

[W. T.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, No. 19.
MAY 9, 1907.

1. JOSEPH, M. *The General Treatment of Skin Diseases.*
2. *ZIEGLER, C., and JOCHMANN, G. *Acute Myelogenous Leukemia.*
3. HORNER, A. *Blood Pressure by Means of Pal's Sphygmoscope.*
4. *KAREWSKI, F. *A Liver Abscess following Influenza.*
5. OFFERGELD. *Dissecting Metritis of Puerperal Origin.*
6. PADERSTEIN. *Migraine Attacks and Periodic Paralyses of the Motor Oculi.*
7. HARNACK, E. *The Question of Skin Electricity.*

2. The authors give the complete history, blood findings and anatomical examination of a case of acute leukemia in Strümpell's clinic in Breslau. This occurred in a young man, fifteen years old, previously healthy; and was especially interesting in that it came on fourteen days after a general staphylococcus infection, culminating in a hemorrhagic pericarditis. Suddenly, during the course of the sepsis,the blood became filled with myeloid cells, the total white cells in two days reaching 240,000 of which 60% to 70% were myelocytes. From the blood picture the clinical diagnosis of acute myelogenous leukemia was made and was confirmed ten days later by autopsy. Microscopical investigation of organs and bone marrow showed marked myeloid changes. The lymphatic apparatus of the lymph glands and intestinal tract were free from myeloid infiltrations. The authors consider that this case increases the probability of a relationship between acute and chronic leukemias and bacterial infections. Such a relation need not be a specific one, but may only create such changes in the blood-forming organs that a leukemic process may later develop.

4. Karewski reports a case of abscess of the liver, occurring fourteen days after an influenza, the pus from which showed numerous cocci without especial characteristics. There were no objective signs of liver trouble observed before this, and after operation and drainage of the abscess, the patient made a complete recovery, and has remained well for two years. There seemed to be no other etiological cause for the abscess than the influenza.

[L. G. M.]

Miscellany.

THE MASSACHUSETTS MEDICAL SOCIETY.

MEETING OF THE COUNCIL.

THE Council met in Mechanic Building, Boston, on Tuesday, June 11, 1907, at 5 P.M.

The meeting was called to order by the president, Dr. George W. Gay. One hundred and twenty-two councillors were present.

The Secretary announced that 170 Fellows had been admitted during the past year, and that 37 deaths had been recorded.

The Treasurer's report showed receipts with the balance from the previous year, amounting to $28,111.11, and expenditures amounting to $15,076.66, leaving a balance on hand of $13,034.45.

It was voted, on recommendation of the Committee on Membership and Finance, that $4,500.00 of the surplus in the treasury be distributed among the district societies.

The Committee on Publications reported that Dr. Frederick Forchheimer, of Cincinnati, had accepted the appointment of Shattuck lecturer in 1908.

The Committee on State and National Legislation reported that during the past year they have appeared either in person or by representative before the Committee of Public Health, advocating the passage of the following bills: For labeling Patent and Proprietary Drugs and Foods; To Prohibit the Evasion of Vaccination Laws; To Regulate the Sale of Poisons; for Appointment of Medical Inspectors through the State; for Proper Sanitation of Factories; for the Transfer of Certain Powers from the District Police to the State Board of Health; and for further Provision for the Care of Patients with Advanced Tuberculosis. They have opposed the bill to create a State board of osteopathic examination and registration. The Auxiliary Legislative Committee has proved of great service in reaching certain members of the legislature.

On motion of Dr. Cabot, it was voted that the sum of $300.00 be appropriated for the use of the Committee on Tuberculosis.

A letter from Dr. Marcy, soliciting an appropriation for a memorial to Dr. N. S. Davis as the founder of the American Medical Association, was responded to by voting $300.00 for the object.

On motion of Dr. Gilbert it was voted that the matter of medical expert testimony reform, referred to the Council by the Norfolk District Medical Society, be referred to the Committee on State and National Legislation, to take such action as they consider best.

In accordance with the request of the Committee on Medical Legislation of the American Medical Association, that a delegate be appointed from the Society, it was voted that Dr. S. D. Presbrey be the appointee.

Dr. Harvey, chairman of the Committee On Revision of the By-Laws, presented a code revised to meet suggestions made at the last meeting of the Council, and requested further suggestions if any changes were desired. A slight change was suggested in By-Law 12, which, approved by the Council, was accepted. On the request of an opinion as to the ratio of Councillors to membership in the district societies, it was voted that it be 1 to 20, as embodied in the report, be recommended.

On this point the secretary stated as a result of the request of an expression of opinion from the district societies, that of the 18 district societies, 10 had replied. Of these, 1 desired the ratio to be 1 to 15; 1, 1 to 16; and 8, 1 to 20.

It was voted that the Council commends the new draft of By-Laws submitted by the Committee on By-Laws, and orders the same to be reported at the next annual meeting of the Society for adoption.

The following were elected officers of the society for the ensuing year:

George W. Gay, Newton, President; Francis J. Canedy, Shelburne Falls, Vice-President; Francis W. Goss, Roxbury, Secretary; Edward M. Buckingham, Boston, Treasurer; Edwin H. Brigham, Brookline, Librarian.

Thomas F. Harrington, of Boston, was chosen Orator for the annual meeting of the society in 1908.

The following standing committees were appointed:

STANDING COMMITTEES.

Of arrangements: G. S. C. Badger, Lincoln Davis, L. W. Gilbert, C. C. Simmons, G. H. Francis, A. N. Broughton.

On publications: O. F. Wadsworth, G. B. Shattuck, H. L. Burrell.

On membership and finance: F. W. Goss, Walter Ela, C. M. Green, A. Coolidge, Jr., H. A. Wood.

To procure scientific papers: B. P. Croft, R. C. Larrabee, M. D. Clarke, Charles Harrington, R. B. Greenough.

On ethics and discipline: C. G. Carleton, J. F. A. Adams, Leonard Wheeler, J. A. Gage, J. W. Bartol.

On medical diplomas: H. E. Marion, O. F. Rogers, H. W. Newhall.

On medical education: H. C. Ernst, H. D. Arnold, C. H. Williams.

On state and national legislation: G. W. Gay, S. D. Presbrey, G. G. Sears, D. D. Gilbert, C. H. Cook.

MEETING OF THE SOCIETY.

The society met in Mechanic Building at 9 A.M. Wednesday, June 12, for its one hundred twenty-sixth anniversary.

The President, Dr. G. W. Gay, in the chair.

The important matters of business transacted were as follows:

The Committee on Revision of the By-Laws presented the new draft commended by the Council, and moved that it, together with the rules of the society and the Code of Ethics, be adopted.

After the defeat of a motion that no district society shall be required to elect a less number of Councillors than chosen for the year 1907, the motion of the committee was adopted. On motion of Dr. Harvey it was voted that all By-Laws heretofore in force be repealed.

Dr. Harvey stated that several of the schools included in the list of those recognized by the Council are inferior institutions, affording defective instruction to medical students.

He moved and it was voted,—

That the Committee on Medical Diplomas be instructed to revise the list of medical colleges recognized for the purpose set forth in By-Law 1, and report to the next stated meeting of the Council.

Dr. Cabot offered the following which was adopted:

Resolved, that The Massachusetts Medical Society, having observed, with the highest satisfaction, the great interest which the Governor of this Commonwealth has taken in matters pertaining to Public Health, to which he called the especial attention of the legislature in his last inaugural address, and with reference to which he has urged, both publicly and privately, the passage of laws to provide for the medical inspection of minors engaged in industrial pursuits, as well as for the suppression of tuberculosis; and this society having also perceived the readiness and enthusiasm with which the present legislature has carried out these suggestions, as shown by the enactment of legislation for the establishment of health districts and the appointment of medical inspectors throughout the state; for the compulsory notification and registration of tuberculosis and for the erection of three sanatoria for the treatment of tuberculosis, — desires to convey to his Excellency Governor Guild, and to the members of the legislature, its appreciation of their efforts in behalf of the health and welfare of the state, and hereby extends to them a vote of heartfelt thanks.

Resolved, that a copy of these resolutions be transmitted to the Governor of this Commonwealth, to the President of the Senate and to the Speaker of the House of Representatives, and that they be spread upon the records of this society.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 8, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,434	436	Quincy	9	1
Chicago	574	138	Waltham	6	2
Philadelphia	—	—	Pittsfield	—	—
St. Louis	—	—	Gloucester	—	—
Baltimore	155	38	Brookline	4	—
Cleveland	—	—	North Adams	8	1
Buffalo	—	—	Chicopee	3	2
Pittsburg	—	—	Northampton	8	2
Cincinnati	—	—	Medford	5	1
Milwaukee	—	—	Beverly	5	1
Washington	—	—	Leominster	—	—
Providence	74	26	Hyde Park	0	—
Boston	197	47	Melrose	7	0
Worcester	38	11	Newburyport	—	—
Fall River	34	12	Woburn	3	—
Cambridge	29	3	Marlboro	3	2
Lowell	33	6	Westfield	3	1
Lynn	29	3	Peabody	—	—
New Bedford	24	4	Revere	2	1
Springfield	26	2	Attleboro	—	—
Lawrence	27	7	Clinton	2	0
Somerville	16	4	Adams	6	1
Holyoke	23	7	Gardner	—	—
Brockton	10	1	Milford	—	—
Malden	10	1	Watertown	4	0
Chelsea	6	1	Plymouth	—	—
Salem	15	2	Weymouth	2	0
Newton	10	1	Framingham	6	1
Haverhill	20	5	Southbridge	1	—
Fitchburg	11	3	Wakefield	—	—
Everett	4	2	Webster	—	—
Taunton	—	—			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 15, 1907.

J. M. PAGE, surgeon. Granted leave for three months, when discharged from treatment at Naval Hospital, Mare Island, Cal.

J. H. MCGUIGAN, pharmacist. Unexpired portion of sick leave revoked. Ordered to Naval Hospital, New York, N. Y., for treatment and observation.

D. DICKINSON, medical director. Ordered to additional duty as a member of the Naval Retiring Board, Washington, D. C.

W. J. ZALESKY, passed assistant surgeon. Commissioned Passed Assistant Surgeon from April 12, 1907.

H. L. KELLEY, assistant surgeon. Appointed Assistant Surgeon June 6, 1907.

C. T. HIBBETT, medical inspector. Detached from the Naval Recruiting Station, St. Louis, Mo., June 15, and ordered to the Bureau of Medicine and Surgery, Navy Department, for temporary duty.

A. R. ALFRED, surgeon. Detached from course instruction, Naval Medical School, Washington, June 15, and ordered to Naval Rendezvous, Pittsburg, Pa.

J. C. PRYOR, surgeon. Detached from Naval Medical School Hospital, Washington, D. C., June 13, and ordered to Naval Hospital, Yokohama, sailing from San Francisco, Cal., via steamer "Siberia," about July 25.

H. E. ODELL, surgeon. Detached from duty at Naval Hospital, Washington, D. C., June 20, and ordered to Naval Hospital, Mare Island, Cal.

J. M. MOORE, surgeon. Detached from the Naval Rendezvous, Minneapolis, Minn., and ordered to Naval Rendezvous, Chattanooga, Tenn.

W. W. VERNER, passed assistant surgeon. Detached from Naval Rendezvous, Pittsburg, Pa., June 15, and ordered to Naval Rendezvous, St. Louis, Mo.

F. M. BOGAN, passed assistant surgeon. Detached from instruction at Naval Medical School, Washington, D. C., June 15, and ordered to Naval Rendezvous, Minneapolis, Minn.

R. W. PLUMMER, passed assistant surgeon. Detached from instruction, at Naval Medical School, Washington, D. C., ordered to "Constellation" and to additional duty at Naval Training Station, Newport, R. I.

A. MCK. JONES, acting assistant surgeon. Detached from Naval Rendezvous, Chattanooga, Tenn., and ordered to Washington, D. C., July 1, for examination for assistant surgeon, then to wait orders.

T. N. K. PHILLIPS, pharmacist, when discharged from treatment at Naval Medical School Hospital, Washington, D. C., ordered to Naval Hospital, Yokohama, sailing from San Francisco, Cal., via steamer "Korea," about July 9.

C. MCLARTY, pharmacist. Detached from Naval Hospital, Yokohama, and ordered to duty at Naval Hospital, Mare Island, Cal.

F. L. PLEADWELL, surgeon. Detached from duty at Naval Hospital, Yokohama, ordered home to wait orders.

J. H. PAYNE, Jr., passed assistant surgeon. Detached from course instruction Naval Medical School, Washington, D. C., ordered to Naval Rendezvous, Providence, R. I.

W. G. STEADMAN, acting assistant surgeon. Detached from Naval Rendezvous, Providence, R. I., ordered to Washington, D. C., July 1, for examination for appointment as assistant surgeon and then wait orders.

RECENT DEATHS.

DR. LAMAR SEELEY, a member of the house staff of St. Luke's Hospital, New York, died suddenly, from cardiac disease, on June 14, at the age of twenty-six years. He was a native of Portland, Ore., and a graduate of Williams College. He was graduated in medicine at Johns Hopkins University in June, 1906.

DR. SAMUEL SPENCER WALLIAN, of New York, died on June 12, after a brief illness. He was born in Brookfield, Ohio, in 1835, and was a veteran of the Civil War, in one of the last battles of which he was severely wounded. He later took up the study of medicine, and was graduated from the medical department of the University of the City of New York in 1883. Dr. Wallian early became interested in the medical use of oxygen, and for a number of years he had been engaged in manufacturing the gas and supplying it to the profession.

BOOKS AND PAMPHLETS RECEIVED.

Mental and Moral Heredity in Royalty. A Statistical Study in History and Psychology. By Frederick Adams Woods, M.D. Illustrated. New York: Henry Holt & Co. 1907.

Surgical Diagnosis. By Daniel N. Eisendrath, A.B, M.D. Illustrated. Philadelphia and London: W. B. Saunders Co. 1907.

A Text-Book of Embryology. For Students of Medicine. By John Clement Heisler, M.D. Third edition, thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders Co. 1907.

A Text-Book of Materia Medica for Nurses, including Therapeutics and Toxicology. By George P. Paul, M.D. Philadelphia and London: W. B. Saunders Co. 1907.

American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D. Third edition, revised and enlarged. Philadelphia and London: W. B. Saunders Co. 1907.

Atlas and Epitome of Diseases of Children. By Dr. R. Hecker and Dr. J. Trumpp. Authorized translation from the German. Edited by Isaac A. Abt, M.D. Illustrated. Philadelphia and London: W. B. Saunders Co. 1907.

Modern Methods of Diagnosis in Urinary Surgery. By Edward Deanesley, M.D., B. Sc. Lond., F.R.C.S. London: H. K. Lewis. 1907.

The Principles and Practice of Dermatology. Designed for Students and Practitioners. By William Allen Pusey, A.M., M.D. Illustrated. New York and London: D. Appleton & Co. 1907.

Précis de Technique Orthopédique. Par P. Redard. Illustrated. Paris: F. R. de Rudeval. 1907.

A Combination of the English and French Obstetric Locks, for the Prevention of Dangerous Compression of the Fetal Head by Forceps. By A. Ernest Gallant, M.D. Reprint.

Modern Medicine. Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by William Osler, M.D., assisted by Thomas McCrae, M.D. Vol. I. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1907.

The Efficient Life. By Luther H. Gulick, M.D. New York: Doubleday, Page & Co. 1907.

The Practical Medicine Series. Under the general editorial charge of Gustavus P. Head, M.D. Vols. I, II and III. Illustrated. Chicago: The Year Book Publishers. 1907.

University of California Publications. Pathology. On Fermentation. By Alonzo Englebert Taylor. Berkeley. 1907.

Original Articles.

TRANSMISSIBILITY AND CURABILITY OF CANCER.*

BY WILLIAM SEAMAN BAINBRIDGE, A.M., SC.D., M.D., NEW YORK,
Honorary President of the First International Congress on Cancer, Heidelberg; Surgeon, New York Skin and Cancer Hospital, Etc.

"Is cancer contagious?" The question has passed from laboratory to home and highway, and is anxiously repeated on all sides. Boards of health, charity organization societies, and schools of philanthropy are flooding the country with literature concerning the contagiousness or infectiousness of certain diseases, and as a result the public has become thoroughly alive to the existence of our "myriad millions" of unseen foes. No new theory relative to disease can be propounded or research work reported without the probability of distorted or exaggerated versions thereof being flaunted in the public press of the civilized world, to make upon the minds of the credulous masses impressions for good or ill, as the case may be. Reputable physicians, actuated by motives of one kind or another, not infrequently give expression through the medium of the medical press to conclusions drawn from premises that have not been and often cannot be verified, and thus "confusion worse confounded" arises in the public mind concerning matters medical.

No one can gainsay the importance to mankind of the formulation of hypotheses concerning disease and the painstaking verification thereof by experimental and other methods. Surely such work should be reported and discussed from all points of view; but it is most unfortunate that such discussion cannot be carried on behind closed doors, — as was done, for example, at the First International Congress on Cancer held at Heidelberg last year, — until the scientific workers have something definite and conclusive to say to the world at large. The public has a right to know the results of all scientific research, particularly as it pertains to health and disease, and more particularly when the public's money defrays the expense thereof. But should they be overwhelmed with theories formulated in the laboratory, and frightened by specters that oftimes exist only in the microscope, or rather in the mind of the microscopist?

The laity have a way of settling these questions for themselves, and not infrequently the public at large reach conclusions and have settled convictions on medical subjects before the medical profession has really given them serious thought.

In this way it has come to pass that the "cancer problem" in some of its aspects is being settled by the laity for themselves; and it is being settled, unfortunately, in a manner that bodes ill for the cancer victim. At the present moment there is a special feeling of unrest, almost of terror in many instances, among those afflicted with cancer. Particularly is this true of persons associated in one capacity or another with these unfortunates. This has markedly increased within the last few months, at least in my own experience, which, I take it, is not unlike that of others who come in contact with cancer cases from day to day. It is a condition which confronts us, as clinicians, on all sides, and we should face it fairly and squarely, in justice to all concerned.

In very many instances, which I might cite, and which are doubtless duplicated in the experience of others, I am plied with the question, "Is cancer contagious?" About a year ago I sent a graduate nurse to take care of a cancer patient; she went without demurring. Recently I called her for a similar case, and when told that the patient had cancer she absolutely refused to go, acknowledging that she had become afraid of cancer on account of its "danger," and declaring that she would never nurse another cancer patient.

A woman upon whom I operated last November for advanced recurrent carcinoma of the breast, and again in January for the removal of metastatic nodules, recently died. About two years ago, in the same home, her sister died of multiple sarcomata. When some tenants in the house (which is a large apartment house occupied only by the well-to-do) became aware of the nature of the second patient's malady they became alarmed, demanded that the woman leave, and even threatened during her last days to have her evicted.

Still another illustration of this growing fear of "catching" cancer came to my notice recently. I was called to see a patient afflicted with cancer who had been admitted to a small hospital in the Borough of Kings. Upon arrival I learned that the nurses, with the exception of the head nurse, had struck in a body, positively refusing to remain in the hospital if they were expected to care for this patient. Impressed by this incident, I asked the head nurse of one of the large metropolitan hospitals what, in her experience, is the feeling of nurses with reference to the care of cancer patients. Her reply was, "We are nearly all afraid of it."

A woman of intelligence called upon me recently in evident distress because her husband, believing cancer to be contagious, had become thoroughly alarmed and worried, upon learning that her mother, whom she had recently nursed in her last illness, had died of cancer. This wife came with the oft-repeated question, "Do you believe cancer is catching?"

Only a few days ago an acquaintance told me of a woman friend of hers who had been troubled for some time with intestinal symptoms. The friend had three aunts who had died of "internal cancer," and my informant said, "It is useless for the doctors to conceal the diagnosis, for of course with this cancer in the family she has the disease."

Not only has the watchword, "cancer is catching," gone forth among the more intelligent and well-to-do, but it has penetrated the ignorance and poverty of the tenements, and we find the poor, hard-working mother of the East Side

* Read in part before the Richmond County Medical Society, Staten Island, May 1, 1907; in full before the Rochester Academy of Medicine, Rochester, N. Y., May 15, 1907, and in part before the Medical Association of the Greater City of New York, May 20, 1907.

groping in the darkness of despair with a new specter haunting her, — the fear of "giving" her own loathsome disease to her husband or children.

A short time ago a mother, in broken English, said to me, "You say grandma has cancer of the stomach?" "Yes," I replied, "and she has only a few days to live." Then she said, "I am burning all the rags and everything. If we keep her here will we give it to the children?" As she pointed to herself I knew the thought of giving the dread disease not only to the little ones about her, but to the unborn babe, was weighing heavily upon the mother's heart.

I might multiply many times examples of this growing fear of the contagiousness of cancer, but the above will suffice to show that it is no chimera, but something very real in the minds of many.

This wave of unrest and fear will gather momentum as time goes on, unless checked by a counter-wave of common sense, and the lot of the poor cancer sufferer will be even more pitiable, if possible, than it is at present.

Let us, with unbiased minds, look for a moment at the evidence (or some of the evidence, for it is impossible in a paper of this length to do more than touch upon the more salient parts of the subject) from which this "nameless fear," this "cancer ghost," perhaps, has been conjured into such distressing reality in the public mind.

Three factors seem to play an important rôle, viz., (1) heredity, (2) congenital transmission, (3) infectiousness or contagiousness.

Heredity. — Bashford is of the opinion that heredity and inherited susceptibility are proper subjects for experimental inquiry, "which," he says, "will enable us to avoid the fallacies which are almost inherent in statistics based on the occurrence of cancer in man."

Delafield and Prudden ("Handbook of Pathological Anatomy and Histology") say: "While the influence of heredity is difficult to estimate, there are a few well-authenticated instances of the remarkable prevalence of malignant tumors in families within a few generations. The general facts, however, are not so striking. The statistics of Williams showed that in two hundred and thirty-five cases of carcinoma of the uterus or breast, about 9% gave a history of carcinoma in the father or mother, while in nearly 20% there was evidence of carcinoma in the family. In the estimates of other observers, the hereditary influence seemed evident in about one third or one fourth of the cases. It is, however, instructive in this connection to note that in a study of Snow, of seventy-eight healthy persons, there was evidence of carcinoma in the family of about one fifth of the cases. It is clear, therefore," they continue, "that while such statistics are suggestive and on the whole indicate that an hereditary predisposition to the development of tumors may exist, this does not in any way account for the immediate incitement of the growth of tumors, and is, indeed, as Menétrier has urged, but one of many examples of hereditary predisposition which is observed in many forms of disease, such as infections, cerebral apoplexy, etc."

McFarland ("Textbook of Pathology") is of the opinion that "Heredity has considerable influence, certain families being particularly liable to mammary, uterine or gastric carcinoma, from which other entire families are free. It is only the predisposition that is hereditary, there being no evidence that the cause of the tumor passes from parent to offspring."

Roger Williams, who has done a great deal of statistical work on cancer with reference to inheritance, in 1892 reported 136 cases of carcinoma of the breast with a history of heredity in 29.2%. He reports 48 cases in 33 families. More than one relation was affected in eight cases; there was a history of carcinoma in the families of both father and mother in four cases; in 6% he found a multiple history in successive generations, and a direct inheritance in 8%. Among other cases cited Williams refers to the fact that the father, brother and two sisters of Napoleon all died of cancer of the stomach, to which disease Napoleon himself finally succumbed. Broca records sixteen deaths from cancer in a family of twenty-seven members. In the "Second Report of the Cancer Research Laboratory of Middlesex Hospital," Hillier and Tritsch, discussing "Heredity in Cancer," quote the following as "either actually in favor of recognizing a hereditary causal factor or at least not opposed to it": Paget, Velpeau, Virchow, Baker, Roger Williams, Esmarch, Billroth, Tillmann, Dietrich, and others.

Among those quoted in the same report, Moore, Harrison, Cripps, Snow and Brand were not inclined to attach much if any importance to heredity as a causal factor in the production of cancer. "Brand reasons that the occurrence of cancer in several members of a family, whose parents have succumbed to it, cannot be accepted as evidence of heredity, but it can and ought to be accepted as evidence of infection from an obvious source." Snow attributes the disease not to inheritance, but to chance or infection.

In this connection may be mentioned the statement made by Chantemesse and Podwyssotsky: "When the microbic nature of cancer becomes recognized, all the clinical history of that malady, its mode of propagation, etc., will correspond perfectly with its parasitic etiology. Heredity of the neoplasm will become then inheritance of a predisposition to allow of the implantation of the parasite."

Statistics might be multiplied *ad infinitum* to convince the doubting that heredity plays an important part in the etiology of cancer, but since most of these might apply with equal force to the side of infection, it would be profitless to quote more. It will be seen, however, from what has been given, that if the subject ever affords any conclusive evidence on either side it will be only after much further investigation than has yet been recorded.

Congenital transmission. — This subject is even more obscure than is that of heredity, and also furnishes a field for careful observation and study. Accurate records of such study would doubtless help to clarify the present situation. On this

subject Roger Williams says: "I have been greatly impressed with the large proportion of the neoplasms of early life that obviously arise in conjunction with embryonic developmental aberrations. I have found that the proportion of cases in which a history of heredity is recorded is considerably smaller than are the corresponding neoplasms of adult life; consequently I cannot corroborate Hutchinson's dictum that 'malignant disease in young persons is generally inherited.' The newly born infants of mothers, themselves the subject of malignant disease, are hardly ever thus affected."

Numerous cases have been reported of malignant neoplasms of supposed congenital origin, some of which are too vague in their details to be of much worth as evidence of the possibility of congenital transmission, while others seem to be of more value from a statistical point of view.

Dr. A. Jacobi, in 1869, reported the first of a very small number of cases on record of congenital sarcoma of the tongue. A swelling was first noticed a few hours after birth. It was the size of a hazelnut, on the left side of the tongue, one-half inch back from the tip. The tumor was removed by galvano-cautery and microscopic diagnosis of sarcoma made.

Nélaton observed a fibroplastic tumor in a child three days old.

The case reported by Williamson (London and Edinburgh *Monthly Journal of Medicine*, 1841) has been extensively quoted. This was supposedly a congenital cancer of the stomach. The child was apparently healthy at birth, but in a few days began to vomit and become emaciated. This continued until death, which occurred at the end of five weeks. Autopsy showed the pylorus to be hard and indurated, with the orifice almost closed. The author designates the condition as "scirrhus of the pyloric extremity of the stomach." This was probably a simple hypertrophy rather than a cancer.

Widerhofer, Chiari, Cullingworth, Kuhn, Billroth, Dawson and others report cases of so-called congenital cancer.

Contagiousness or infectiousness. — Belief in the contagiousness or infectiousness of cancer seems to rest chiefly upon four things, viz., (1) the theory of the contagiousness or infectiousness of malignant tumors in mice, based upon the supposed parasitic origin of the disease; (2) the transmissibility of the Jensen mouse-tumor; (3) inoculation experiments; (4) the reports of cases in human beings of coexistent or coincident cancer, supposedly the result of accidental infection.

Apropos of the *first* category we are reminded of the words of the eccentric professor in the University of Prague, Ferdinand Hueppe, who said: "According to the *theatrum diabolorum*, the view prevailed in the Middle Ages that 'every sin is under the control of and operated by a particular devil'; at present each disease in similar fashion has its own devil in the form of a specific bacillus. Beelzebub, the god of invisible evil flies, is peculiarly the protecting patron of the 'specific' bacteriologist."

Of this category, too, Beard, of Edinburgh, says: "Neither in Edinburgh, nor in London, nor in Copenhagen, has the Jensen mouse-tumor been found to be contagious at all! It is only in places where a new cancer-parasite is in keen request and in urgent demand that Jensen's mouse-tumor acquires contagious properties. These are in direct proportion to the researcher's faith in cancer-parasites!"

In this connection, also, Bashford and Murray (*Lancet*, March 23, 1907) say, "We have observed the effects of inoculating 60,000 mice with carcinomata. The animals have been kept under painstaking observation. The development of tumors that could be referred to infection or contagion has been observed in *not one single instance*." Ehrlich's experience agrees with that of Bashford and his co-workers. Again, they say, "The housing of mice suffering naturally from cancer with normal animals has yielded no evidence of infection or epidemics, although our observations have now been extended over a longer period than any previous investigations, and much longer than a mouse lives." (The life-span of the mouse is about three years.)

"The positive statements," they continue, "made in regard to infection when small animals suffering from cancer are housed with normal animals can be referred with confidence to (1) fallacious observations; (2) erroneous deductions . . .; (3) unwarranted assertions by those without personal experience." "The very positive statements about infection in the case of mice are at present devoid of all scientific value."

While the majority of laboratory workers in the various centers seem to agree with the views just outlined, Gaylord, Park, Clowes, Lyon and a number of others are promulgating the idea of the infectiousness of cancer, basing their views largely upon the belief in the parasitic origin of the disease. The careful and painstaking work done by these men is too familiar to all to need review for the purposes of this discussion.

J. George Adami, Professor of Pathology, McGill University, sums up the main arguments for the parasitic origin and infectious nature of malignant growths in part as follows:

1. Increase in frequency of malignant tumors.

2. The incidence of the disease is frequently found to be peculiarly local — certain districts and houses.

3. The lesions produced by the growth of malignant tumors within the organism are comparable with those induced by certain known infective agencies.

4. The more carefully material from malignant tumors is examined, the larger is the proportion of cases in which certain intracellular and extracellular bodies are to be recognized.

5. While the cases on record of apparent direct infection from one individual to another are so rare as to be explained by the law of chance and as being but the coincidental occurrence of the same disease in two associated individuals, and while the experimental inoculation of fresh cancerous material from one individual to the other (whether

these be of the same or different species) has almost uniformly failed, nevertheless, in rare cases this would have appeared to have succeeded. "Two factors," he says, "are necessary for successful experimental inoculation, — the virulence of the parasite and the susceptibility of the tissues. To this lack of susceptibility is to be attributed the frequent failure of experimental inoculation."

It may be seen at a glance how some of these arguments in favor of the infectious origin of cancer may be used with equal reason, apparently, by those who do not accept this view of the question, and how some of the statements are contradicted by competent observers. For example, concerning the increase in cancer, Bashford (*Lancet*, Sept. 15, 1906) says that an investigation into the statistics of cancer incidence with the Registrar-General showed that there was no increase of cancer and no evidence of endemicity in cancer. The observation of the intra- and extra-cellular bodies is claimed by some to be due to errors in staining, and that with the same methods the same bodies are to be found in normal tissue. However that may be, Gaylord, in the report of the Gratwick Pathological Laboratory for 1900, says: "We are prepared to state (from examinations of organs from cadavers who have died from cancer) that all organs, including the blood, taken from all cases dying of cancer, including sarcoma and epithelioma, contain large numbers of the organisms" (parasites).

Again, susceptibility of the tissues argues equally well for those who believe in hereditary predisposition to cancer.

From the above cursory glance at this phase of the question it may be easily seen that etiology is in a maze of doubt and uncertainty, and that there is little, if anything, sufficiently well established to be given over to the medically uneducated, to be warped and distorted according to the individual's susceptibility and credulity.

Of the *second* category mentioned, Bashford says: "The experimental propagation of a malignant new growth means nothing more or less than the continued proliferation of the cells of a tumor of one animal in another animal. . . . The process is as remote from being of an infective nature as that responsible for the natural formation of metastases in organs remote from the preliminary site in sporadic cases, with which it is strictly comparable." Jensen himself holds that tumors developing after transplantation of tissue in mice are direct genealogical descendants of the cells introduced.

Concerning this particular matter another note is sounded by Roger Williams and others who are of like opinion. He holds that the Jensen mouse-tumor differs *in toto* from cancer or any form of human malignant tumor. The differences are summed up by Williams in substance as follows:

(1) The Jensen mouse-tumor is highly contagious; thus, when infected animals are introduced into cages with healthy animals the latter take the malady, as if by local contagion, sometimes in such numbers as to constitute veritable epidemics. Nothing like this occurs with human beings. (We have already seen how radically this differs from the views of Bashford and his co-workers. It coincides, however, with the observations of Gaylord and others.)

(2) "Jensen's tumor" is readily transmissible by implantation to other mice, the proportion of successful experiments often being as high as 30%. No such property is ever manifested by human cancer.

(3) "Jensen's tumor" in over 20% (Clowes) undergoes spontaneous cure, and the cured animals are then immune to further contagion. With human malignant tumors no such spontaneous curability has ever been scientifically demonstrated, although sometimes alleged. (This calls to mind the work of Gaylord and his co-laborers in immunity.)

(4) "Jensen's tumor" is circumscribed and easily enucleable, the tissues of the host forming no part of it; moreover, the latter do not acquire cancerous properties, nor do they become interpenetrated by injurious processes of the neoplasm.

(5) "Jensen's tumor" causes no cachexia. (In this Bashford agrees.)

(6) According to Apolant and Ehrlich, "Jensen's tumor" in the course of experimental transmission often changes its type — from epithelial to sarcomatous, etc., — and Morau found, under similar circumstances, that its physiological type also changed, with corresponding alteration in its power of inoculability.

The *third* category, inoculation experiments, gives little unanimity of result. Early in the last century Alibert, Biett and others made attempts to inoculate themselves and other persons with cancer, but were uniformly unsuccessful. Experiments with the inoculation of human cancer into animals have been made by Lagenbeck, Lang, Mayet, Bosc and Vedel, and many others, with doubtful success in the majority of instances, and failure in many. Gaylord inoculated guinea-pigs with peritoneal fluid from a human abdominal tumor, and found in the lung of one of the animals what he pronounced adeno-carcinoma. A dog inoculated by him with peritoneal fluid from a similar case was killed after ninety days, when numerous nodules were found in the liver. These he considered to be new formations derived from the liver epithelium. There seems to be no proof of the reproduction of the original type of cancer. Many experiments have also been made with the inoculation of animals with cancer preparations from other animals of the same or different species, successful results being reported in many instances. This subject, however, is no exception to the rule of insufficient evidence.

Bearing in mind the conflicting opinions hereinbefore given among men who, by virtue of their splendid facilities for experimentation, should be best able to form conclusions, let us turn for a moment to the *fourth* reason given in many

quarters for the belief in the infectiousness of cancer, viz., reported cases of coincidental or coexistent cancer in human beings. The opponents of the theory brush these aside with age-incidence, coincidence, environment, etc., which seem to them adequate to account for the individual cases of this class. And it is interesting to note that the cases considered, on the one hand, to be instances of cancer contagion or infection, are, on the other, considered excellent examples of hereditary cancer, or predisposition to cancer development.

Cases of " transference " or " transplantation " from one locality to another in the same individual are reported by Bergmann, Newman, Shattuck and others, but these are relatively very rare, particularly in the light of the fact that the surfaces of the body contiguous to the cancer are bathed more or less in the discharges from the malignant area, and would seem, therefore, to be particularly liable (unless it be believed that the individual has become self-immunized, as it were) to infection thereby.

More frequent are the instances of cancer co-existent or coincidental in persons closely associated. And here, it would seem, a number of factors other than infection must be considered, such as age-incidence, environment, heredity, etc.

Handley reports the case of a husband who developed cancer of the breast within a year of his wife's death from cancer of the uterus. Lyon mentions four cases, in two of which the husband and wife lived together and died, in the same house, two and five years apart, and two in which husband and wife lived together but died in different houses, three and eight years apart. In one instance there was a family history of cancer for each, in two instances for one only, and in the remaining instance no history of cancer in the immediate family was obtainable. In none of these was there cancer of the genitals. A case in my own practice was that of a woman, fifty-one years of age, with cancer of the body of the uterus, whose husband, two months older, has cancer of the bladder.

I may mention in this connection an interesting case reported by Childe. Two sisters were found to be suffering simultaneously with cancer of the lower bowel. Inquiry elicited the fact that they lived in close companionship for many years, occupying the same bedroom all the time, and for the most part the same bed. Following up the histories of these sisters the fact was revealed that a year later a third sister, who had lived apart from the other two, visiting them only occasionally, was the subject of cancer in the same region. Had not the third sister developed cancer the cases of the other two would have been beautiful examples of infection. Childe considers the probability of the third sister " catching " the disease from the others as extremely doubtful, and that the three cases taken together rather support the theory of heredity.

Roger Williams considers the cases of co-existence of cancer in husband and wife so few as to furnish no evidence of contagion. He further states that the children of cancerous mothers have never been known to have acquired the disease, even when the placenta, uterus or other parts of the genital tract have been the seat of the malady. He concludes, from his own observations, that cancer is essentially non-contagious.

The only two cases of alleged infection among surgeons which have come to my notice are reported by Guermonprez, he himself being the victim in one instance, developing a papilloma of the finger (previously injured) which resisted the cautery for nineteen months. The nodule developed subsequent to an operation upon a patient with epithelioma of the face. The other case which he reports is that of a surgeon who examined a woman with cancer of the uterus while he had an acne pustule on the examining finger. He subsequently developed cancer of the finger. These cases carry little weight, first, because they are so inadequately reported, and, second, because so very rare in view of the thousands of surgeons, of " cancer experts," of nurses and hospital attendants, as well as friends and relatives of cancer victims, who for years have come in contact with cases of cancer, cancer of all kinds and in all stages of development without becoming infected. The one case, which was exploited in the press a few months ago, of the daughter or niece of one of the above-mentioned " experts," who became a nurse in his " cancer hospital " and subsequently contracted cancer, may or may not be a significant case, but circumstantial evidence, I should say, is overwhelmingly against its being of any value as evidence.

Another coincidence which is, perhaps, not *mal à propos* in this connection, was recently brought to my notice by a woman physician who happens to be a great lover of animals. During her medical schooldays, in another city, a pet mouse (a common gray house-mouse), which was kept in a cage made expressly for it, developed a " sore " extending from the last nipple around to the vertebral column. Upon death by euthanasia of the little animal, autopsy revealed the fact that the " sore " was cancer. Shortly after the death of the mouse a fan-tailed goldfish, which was kept in an aquarium in the same apartment, developed an ulcer in relatively the same position as that occupied by the cancer in the mouse. Autopsy in this case also showed the malignant nature of the growth. During this time the owner of the mouse and fish came in almost daily contact with a woman on the same floor who was a victim of a distressing cancer of the uterus, for which she underwent operation about this time, subsequently dying in her apartment. There was no question of the malignancy in the woman's case, and the animal autopsies and microscopic examinations were performed by a pathologist of acknowledged ability. An interesting feature of the instance cited is that the woman had passed the menopause, the mouse gave birth to a premature offspring shortly after she became a captive, probably being within

the pale of age-incidence, and the goldfish, in the words of the pathologist, was "full of eggs," so that she, too, doubtless came under the category of age-incidence in the female.

Finally, in this connection, I wish to call attention to five cases reported in the *New York State Journal of Medicine*, April, 1906, by Dr. Samuel Lloyd, of New York. These cases are cited not because they are of any clinical or statistical value as given, but rather because they, and the theorizing which they seem to suggest, are striking illustrations of the kind of published matter which has helped to render the "cancer problem" such a complex question. The cases are quoted *verbatim* below:

"Man, an engineer, had a cancer of the tongue from which he died. The night engineer working in the same place came to me about one year later with cancer of the anterior pillar of the fauces. They had used the same drinking cup for several years.

"Man died in Bellevue Hospital of cancer of the stomach. Within two years the wife was operated upon by me for a cancer of the breast.

"I also operated upon a case of cancer of the stomach in a man whose father had died of cancer a few months previously.

"Woman died of cancer of the breast. Two years later I operated upon the sister, who had nursed her, for cancer of the stomach. There were no previous cases of cancer in the family.

"Physician's wife operated upon for cancer of the stomach. The doctor himself, within a month or six weeks after his wife's death, developed a cancer of the lower jaw and died the first of the present year."

In the article referred to, Lloyd quotes from Orth, who believes "every cancer must be designated as an epithelioma," and goes on to say that if this be true, why look further for the cause of cancer. He (Lloyd) reasons that if we shed our normal epithelial cells, so do we our abnormal ones, and the latter, "like the desquamation scales of scarlet fever, are blown hither and thither until they find a resting place in some crack or crevice of the body, to become a veritable cancer graft." Lloyd continues thus: "If these views are correct, then the obvious conclusion is that in order to control the spread of cancer it becomes essential to do something to prevent the dissemination of whatever element communicates the disease. It is probably impossible to completely segregate the victims of this disease. But the public should be educated to consider it as contagious." I wish to lay especial emphasis upon the last sentence quoted, viz., that the public should be educated to consider cancer contagious. In this day of the precautionary handling of all matters pertaining to health it is surely within the bounds of conservatism to insist upon the greatest care in the management of cancer cases, just as is the custom, for example, with tuberculosis, but to advocate the teaching of the contagiousness of cancer to the already over-burdened public, with nothing really proven to substantiate such teaching, seems to us not only unscientific, but decidedly atavistic. Such teaching, emanating from the medical profession, to whom the world must look for enlightenment and help in matters pertaining to public health, would be far-reaching and perhaps brutalizing in its effect, suggesting to our minds the habits, transmitted from lower animals to lower man, of destroying the imperfect and unfit of the species. It would tend to place the cancer victim in the same category with the leper of old — and the leper of to-day — who hears on all sides the cry, "Unclean, unclean!" The fear and anxiety thus inculcated in the minds of the predisposed (granting there be such a thing as inherited predisposition to cancer), and the added mental strain imposed upon the cancer victim himself, would, it seems to us, more than counterbalance the good effect of the precautionary habits which such teaching would stimulate in the public at large.

Still another and perhaps more distressing element of fear and doubt is being given temporary impetus through published articles concerning the question of the curability of cancer. The laity have long been more or less skeptical on this point, and it is not uncommon to hear it said, "Oh, well, if it is not cancer, it will do no harm; and if it is cancer, it can't be cured; so what is the use of an operation." And thus believing, they are added in time to the category of "inoperable," or, at best, "advanced" cases of cancer, with metastases a practical certainty even in the event of radical surgical procedure. Childe has aptly said, "The alarm that exists to-day is begotten of ignorance, is a counsel of despair and deadly delay." If the public is to be enlightened with reference to this momentous cancer problem, let it not be through the promulgation of too positive assertions of the infectiousness of the malady, nor yet by the "explosive exploitation" of every new remedy which comes into notice.

Far be it from me to decry the application of the scientific test to every method of treatment which seems to merit consideration; let each one be tried by those competent to do so, but while this process of elimination is going on, the importance of *early* operation should be borne in upon the intelligence of the public as the only *demonstrated* means of cure in the vast majority of cases. The sweeping assertions, however, of men like Robert Bell, of London, who claims that *no case* was ever cured by surgical means, can nullify in the minds of the public the experience of years of conscientious work on the part of others, for we all know how prone the laity are to magnify failures and lose sight of successes. In the *Medical Record* of Feb. 16, 1907, Bell says, "It must be obvious to every observer how miserably surgery has failed to give relief in cancer"; and further he refers again to surgery, "which," he says "every one knows has seldom given permanent relief, and usually succeeds only in aggravating the suffering and shortening the life of the patient." In the *Dietetic and Hygienic Gazette*, March, 1907, the same author, referring to a recent article by Senn, boldly

challenges " Dr. Senn or any other surgeon to point to a *single case of cancer* which has been operated upon in which recurrence has not taken place at the very seat of operation, and usually, in the first instance, in tissue which was non-existent prior to the operation, viz., the cicatrix."

A review of the statistics of recurrence based upon the three-year limit gives abundant proof of the fallacy of such radical statements as those above quoted, and proof is not lacking even when the limit is run up to ten, fifteen or even more years. In my own experience, which is not of very long duration, I can recall, without reference to my records, numerous cases in which patients operated upon for cancer, which was demonstrated both clinically and pathologically, have lived three years and more without recurrence, and in perfect health. A striking case in point is that of a man, forty-nine years of age, who was operated upon by me for carcinoma of the tongue and glands of the neck. At the first operation, March 11, 1903, many cancerous glands were removed from the region of the tonsil on the left side to the dome of the pleura, and on the right side from the tonsil to the division of the carotid artery. At the second operation, March 28, 1903, the tongue was removed *in toto*. The wounds in each case healed by primary union, the patient was discharged in excellent condition, weighing ten pounds more than when he was admitted to the hospital. Despite the fact that he has several times been reported in the press as dead, he is alive to-day, perfectly well and strong, weighing forty pounds more than when operated upon. He eats, drinks, talks, sings, smokes, — and, as he says himself, does " anything anybody else can do." He is safely beyond the three-year limit, and present indications point to his living out his allotted span free from the dreadful condition from which, I am convinced, nothing but radical surgery could have saved him.

Another case, a woman of fifty years of age, fifteen years ago had one breast removed for carcinoma, and four years ago the other breast was amputated for the same condition. Last year she had a complete hysterectomy for multiple, non-malignant fibroids, but otherwise has been perfectly well and able to do her work.

A nurse while in India developed cancer of the breast, came to this country and subsequently consulted me. I advised immediate operation, and during my absence from the city she went to Philadelphia at my urgent request and was operated upon by Keen. She returned two years later to India, and at the end of three and a half years more died of dysentery. It was her expressed wish that a full autopsy be made to determine whether there was any malignancy present; this was done, and the report was that there was absolutely none.

A man, operated upon four and a half years ago for sarcoma of the axilla and forearm is to-day perfectly well, with no sign of recurrence.

A woman developed cancer of the breast during an attack of double pneumonia and pleurisy. While attending her during this illness I was able to watch the development of a tumor in the breast. When she had sufficiently recuperated from the pneumonia and pleurisy, she was operated upon, April 19, 1902, a complete Halsted operation being performed. She is now perfectly well.

Another case which was brought to my notice some time ago was that of a woman, over sixty years of age, who was operated upon twenty-four years ago by Byford, of Chicago, for cancer of the uterus, a complete hysterectomy being done at that time. The diagnosis was subsequently verified microscopically. She is now well and strong.

In a paper read at the recent meeting of the American Surgical Association at Washington, on the subject of " End Results Following Operations for Carcinoma of the Breast," Halsted expressed the opinion that all statistics should exclude the totally inadequate operations. Following this rule, he said that of 89 cases of cancer of the breast operated upon at Johns Hopkins Hospital, 43% were free from recurrence at the end of three years. Of 110 cases with axillary involvement, 25% remained cured; of 101 cases with cervical gland involvement, only 7% had remained cured.

The cases above mentioned might be multiplied many times. They are doubtless duplicated in the experience of every surgeon who operates for cancer and who takes the trouble to follow up his cases. The literature abounds with statistics culled from the experience of the world's greatest surgeons which prove the fallacy of the statement that cancer cannot be cured by means of surgery. As Childe has said, " *It is the positive cases which are cured that prove cancer curable. The negative cases in which it returns prove nothing with regard to its curability.*"

Thus a brief view of some of the more recent literature of the subject of cancer reveals to the open mind the chaotic state of our knowledge concerning the causative factors involved in the production of malignant disease. Much valuable experimental work has been done along different lines in the various research laboratories, and doubtless the future will see the mists of uncertainty cleared away; in the meantime, clinicians should supplement the work of the laboratories by keeping careful records of all cases and by following up the after-history as far as possible. We have seen of how little statistical or scientific value are many of the cases reported, and there comes to mind the plan, said to be adopted by the British government, of offering a money prize to all hospital physicians within the British empire who give accurate reports of cancer cases, and of fining physicians in the employ of the government who fail to do so.

In the light of our present knowledge, what may we, with due conservatism, say to our patients and to their friends in answer to their eager questioning concerning this important subject? The following points, I believe, may be safely adduced from the mass of conflicting evidence, and, until such time as the " cancer problem " shall be solved, will lead no one into danger:

(1) That the hereditary and congenital acquirement of cancer are subjects which require much more study before any definite conclusions can be formulated concerning them.

(2) That in the light of our present knowledge they hold no special element of alarm.

(3) That the contagiousness or infectiousness of cancer is far from proved.

(4) That evidence to support the theory of contagion or infection is so incomplete and inconclusive that the public need not concern itself with it.

(5) That the public need merely be instructed to apply the same precautionary measures as should be brought to bear in the care of any ulcer or open wound.

(6) That the danger of the accidental acquirement of cancer is far less than from typhoid fever, syphilis or tuberculosis.

(7) That in the care of cancer cases there is much more danger to the attendant of septic infection, of blood poisoning from pus organisms, than from any possible acquirement of cancer.

(8) That the communication of cancer from man to man is so rare, if it really occurs at all, that it can practically be disregarded.

(9) That in cancer, as in all other disease, attention to diet, exercise and proper hygienic surroundings is of the utmost importance.

(10) That cancer is local in its beginning.

(11) That, when accessible, it may, in its incipiency, be removed by radical operation so perfectly that the chances are overwhelmingly in favor of its non-recurrence.

(12) That once it has advanced beyond the stage of cure, in many cases suffering may be palliated and life prolonged by surgical means.

(13) That while other methods of treatment may, in some cases, offer hope for the cancer victim, the evidence is conclusive that surgery, for operable cases, affords the surest means of cure.

ACUTE EPIPHYSEAL AND PERIOSTEAL INFECTIONS IN INFANTS AND CHILDREN.*

BY J. S. STONE, M.D., BOSTON.

AMONG infants and children many bone and joint lesions are seen which differ materially from those which occur in adults. The character of all lesions involving the bones of infants and children depends largely on the anatomy of the epiphyses and to a less extent of the periosteum. This is true whether the trouble is traumatic, infectious, or, for lack of a better term, constitutional. The epiphyseal lines are a very frequent seat of infection, are a source of mechanical weakness, and are the seat of numerous constitutional lesions. The strong periosteum is a source of mechanical strength and influences the spread of infectious processes.

Epiphyseal separations are generally regarded as very similar to fractures. In babies and very young children there must be innumerable injuries to the epiphyses which pass unrecognized. The lesions cannot be demonstrated. In relatively severe injuries to the epiphyses localized tenderness with perhaps some swelling and with disturbance of function are the only signs which can be detected. The lesser injuries are mentioned here merely because they create points of diminished resistance to infection.

The very free vascular supply of the epiphyseal lines by terminal arteries increases, purely as a matter of chance, the liability of infection reaching these points through the blood.

The underlying cause of the infections may often be traced directly to some preceding disease which not only impairs the general health but also brings the infecting organisms into the circulation. Thus in young children it is common to see epiphyseal lesions after pneumonia or after measles. In very young babies the unhealed unbilicus seems a not infrequent source of infection. The opportunity for infection through the tonsils and lymphoid tissue of the naso-pharynx is generally recognized.

Thus preceding disease which allows the entrance of the organisms into the circulation leads to infection of a vascular area, the resistance of which has been impaired by slight trauma.

A few cases are reported in detail because they illustrate clearly certain varieties and complications of epiphyseal infection. They are selected as typical from among the many which have been treated at the Infants' Hospital and in the General Surgical Service of the children's hospitals in the past few years.

E. R., a girl of ten months, of Russian parentage, was sent to the Children's Hospital on Nov. 16, 1903, by Dr. Schwartz, of Lawrence. In his note he stated that the child had been under his observation for two months for trouble with the hip which had existed for some time before he was consulted, and that as there was a tuberculous family history he suspected hip disease. At that time the examination showed some infiltration about the joint with but little limitation of motion. Two weeks later the child came back much worse and was at once admitted to the Infants' Hospital on Dec. 2, 1903. The child was then in poor general condition, pale and flabby. The temperature was 38.7°; the pulse 125; the respiration 40. There was great swelling of the upper part of the left thigh, the mass merging with a tumor which extended through the deeper part of the left iliac fossa into the left lumbar region and which, by rectal examination, could be felt filling the left side of the pelvis. The tumor was most prominent in the upper inner and upper outer part of the thigh as well as in Scarpa's triangle. There was deep fluctuation throughout the tumor and an expansile impulse could be felt when the child cried. The leg and foot were edematous. The femoral, inguinal and iliac lymph nodes were considerably enlarged. The superficial veins were dilated not only in the thigh but upward to the left axilla where the lymph nodes were also enlarged. The thigh was held flexed rather by the tension of the tumor

* Read by invitation before the Boston Obstetrical Society, March 26, 1907.

than by any spasm of the muscles. The lack of muscular spasm and the absolute freedom of motion within the limits fixed by the mechanical limitations of the tumor led to the mistaken belief that the hip-joint was not involved. The loss of flesh and the weakness suggested sarcoma. The deep fluctuation did not bar it out in the minds of several who saw the child. The hardness of the mass as felt in the pelvis, the small size of the mass in the iliac and lumbar regions and the expansile impulse in the upper part of the thigh were striking features of the condition.

An incision was made on the outer side of the thigh. The operation showed an enormous abscess. The epiphyseal head of the femur lay absolutely free in the cavity. The joint capsule lay almost free, as a dirty, sloughing mass, and was pulled away. The acetabulum was entirely empty. The abscess entirely surrounded it. The cavity extended inward to the pubic spine, upward into the pelvis, through the obturator foramen. Outward the cavity extended both in front of and behind the femur. It was washed out with salt solution and a drainage tube was inserted. The discharge, very free at first, gradually diminished. A wick was substituted for the tube after four weeks, and a week later was omitted. Five weeks after the operation she was discharged. The wound had healed. A very little thickening remained within the pelvis at the seat of the abscess. Close about the trochanter there was a little thickening. The thigh could be flexed 30° beyond a right angle. Full extension was possible but was accompanied by outward rotation. Inward rotation was limited, outward rotation was nearly normal. Adduction was impossible. Abduction was possible to 45°.

Ten months later the child, then twenty months old, was fat, of good color, beginning to walk about with the aid of chairs. The wound had healed absolutely. A trifling thickening remained about the trochanter. The motions in the hip were absolutely free in every way except that abduction was limited about one half. The trochanter was about half an inch above Nélaton's line; on rotation it moved through a smaller arc than normal; there was a little up and down play with traction on the leg. The shortening was a half an inch. The leg was moved vigorously. The child limped no more than she was compelled to do by the slight shortening. The radiograph showed absolutely no trouble in the shaft of the bone. The rounding and development of the end of the neck to form a new head was plainly shown. The ultimate result will, I think, be very satisfactory, and is, I think, indicated by the present condition. There will always be some shortening. The head is lost and the space which it occupied cannot be replaced. The acetabulum is practically normal. Functional use is insuring proper development of the shaft of the femur. Growth appears to be normal in the neck of the femur. The capsule is gone but the scar tissue about the old abscess cavity, together with the muscles, will probably prevent any tendency to displacement of the rounded end of the neck out from the normal acetabulum.

In this case the disease seems without question to have begun and to have spread as an acute infection in the epiphyseal line in the head of the femur. As the whole epiphyseal head became detached the suppurative process necessarily entered the joint, but the affection of the joint was purely incidental to the destruction of the epiphysis. The wide extension of the suppuration into the surrounding tissues was purely accidental. It had no connection with the source or form of the infection and had no bearing whatever on the prognosis, except that, of course, the larger the abscess the greater the immediate risk of septic absorption. On the ultimate prognosis the extent of the abscess has no bearing whatever. The future usefulness of the joint depends entirely on the extent of the bony loss. The acetabular surface of the joint was affected in no way.

This case is a fair example of an acute infection in the epiphyseal line leading to absolute destruction of the epiphysis. The epiphyseal head of the bone was not itself inflamed. It was discharged as a sequestrum, necrotic because absolutely cut off from all blood supply.

Another case is interesting in comparison. H. G., a girl, had when six weeks old an acute abscess in the right knee-joint. The joint was drained by an incision on each side. Careful exploration at the time failed to reveal any evidence of bone involvement. In a few weeks the incisions had closed. The mobility of the knee was unimpaired. As a possible factor in causing the infection it may be stated that a slight umbilical discharge persisted for nearly two months after the cord had separated.

In this case, what evidence is there that the infection began in the epiphyseal line? The operation was performed in 1895. The girl is now twelve years old. Three years ago she began to be a little lame. Under rest the irritation about the knee subsided very promptly. Since that time a bow leg has developed and steadily increased. This has been associated with an impairment of growth in the femur of the affected side. The impairment of growth was not noticed until the girl entered upon the period of rapid development preceding puberty. Accurate measurements extending over a period of over three years show that during periods of more rapid growth the bow leg increased and the difference in the length of the femora became more marked. During periods of slow growth the difference in the lengths of the femora and the degree of deformity remained stationary. The radiograph explains perfectly all the facts. Above the inner condyle the epiphyseal line is irregular and scar-like, and is further from the joint than normal and than the epiphyseal line above the external condyle. (Fig. 1.)

At the time of the original trouble at the age of six weeks the infection destroyed a certain

limited growing area in the epiphyseal line. The effect of this destruction did not lead to noticeable deformity for nine years. Then at that age of rapid development the inability of one condyle to grow downward as rapidly as the other led to the necessity for a corrective osteotomy which was done six months ago.

This case is the exact counterpart of another.

A. G., a girl, came to the Infants' Hospital six years ago when about one year old. At that time her right knee was tremendously swollen, red, hot, with fluctuation in and with a sinus discharging pus from the joint. There was some thickening about the lower end of the femur. The leg was put at rest. The sinus apparently drained the wound efficiently. She had at that time a permanent flexion of about 25°. The sinus healed. The swelling subsided. The child used the leg without any trouble at all until she strained her knee walking in the snow three years ago. At that time she was five years old. (Fig. 2.)

The photograph shows the knee straight. When the knee is straight it will be noticed that she has a slight bow-leg, while when the knee is bent there is a slight knock-knee. The tracings of the radiographs which show marked irregularity of the epiphyseal line explain perfectly the nature of this deformity. The trouble the child had in the knee when a year old interfered with the growth in the inner part of the epiphyseal line. (Figs. 3 and 4.)



FIG. 3. Tracing of radiograph of A. G. Irregularity of epiphyseal line of the femur, the result of infection in infancy.

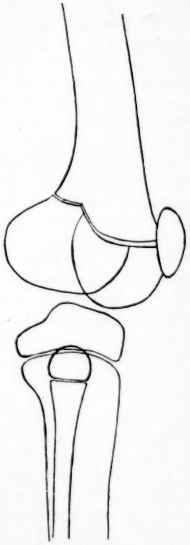


FIG. 4. Tracing of radiograph of A. G., showing irregularity in epiphyseal line of femur.

In each of these cases the infection began in the epiphyseal line but involved only a small portion of it. The knee-joint was involved because the pus escaped into it from the epiphyseal line. In neither case was any damage done by the disease to the knee-joint itself. In neither case was there any extension of the suppuration into the extra articular tissues, nor upward into the shaft of the femur.

As further illustrating the fact that such infections begin in the epiphyseal line the case of A. C., a boy of ten months, is of interest. Without previous illness he was taken sick suddenly in January, 1905. He had high fever. After two days tenderness was noticed in the right shoulder which was followed by swelling. At the end of ten days a large abscess was opened which filled the shoulder joint and extended into the surrounding tissues. By good luck the incision through the deltoid to drain the abscess lay directly over a small cavity in the epiphyseal line of the head of the humerus. The hole just admitted the blunt end of an ordinary probe. The abscess was drained. In a month the wound had closed. There was then, and is to-day at the end of two years, perfect motion in the shoulder. Even if in this instance one side of the epiphyseal head does not grow normally the mechanical structure of the joint is such that no functional impairment will occur.

In this case the infection began in the epiphyseal line. It extended out into the joint and then further into the tissues about the joint, but not into the shaft of the humerus.

In another class of cases, milder and, fortunately, more common, the initial symptoms are practically identical with those in the group already mentioned. The course of the disease does not, however, in certain cases seem quite so severe. At the time of operation the abscess is found to extend down to the periosteum, practically always at the epiphyseal line near to but not entering the joint. The abscesses heal in a few days or at most a few weeks after they have been thoroughly drained.

The particular case of this group which I report is of rather unusual character because the abscess was chiefly under the scapula and closely simulated a sarcoma. Most of these I have seen have occurred about the shoulder, hip, or knee, and have frequently followed pneumonia.

J. M., a boy of two years, of East Cambridge, entered the Children's Hospital on July 17, 1904. He had never been strong. Four months previously he had measles. Since then his appetite had been poor. For a month he had been very pale. Two months before admission the child cried one day when he was picked up under the arms, but nothing further was noticed. Sixteen days before entrance he had a slight fall from a chair. Immediately afterward he did not complain, but for a fortnight he had complained of pain in the right shoulder which was noticed to be swollen three days before admission.

The child was pale and thin and very irritable. There were signs of very mild rickets. There was a slight general enlargement of the lymph nodes. The heart, lungs and abdomen presented nothing abnormal. A tumor about the size of an orange,

tender but not fluctuating, lay under the right scapula. It projected forward into the axilla and pushed the scapula upward and backward. There was no redness or edema over the mass. The temperature ranged from 99° to 103°, averaging about 100°. The pulse was about 120; the respiration 40. There was leucocytosis of 24,000.

The tumor increased in size, grew more tender, and deep fluctuation appeared at a point just inside the angle of the scapula and at the posterior border of the axilla. The radiograph showed no destruction of the bone but a large mass in addition to it. Sarcoma, which the condition strongly suggested, was practically ruled out in diagnosis. Five days after entrance the child was etherized and two incisions were made into the mass, one close to the angle of the scapula, the other in the posterior axillary line. Pus was found lying under the muscles and under the scapula. About four ounces escaped. The cavity extended well forward into the axilla and upward around but not into the shoulder joint. No bone lesion was found from which the abscess might have started although it reached the periosteum about the coracoid process. The cavity was washed out with salt solution and a drainage tube was passed through both incisions between the scapula and ribs.

The temperature dropped to normal in two days. The discharge ceased in about twelve days. The wound closed rapidly and had healed in about four weeks. No swelling, tenderness or limitation of motion remained.

The point of special interest with regard to this group of cases is the exact point of the original focus of infection. At operation it is rarely possible to determine the location of the original focus accurately. It seems probable that it is usually either the epiphyseal line close to the periosteum or the periosteum near to the epiphyseal line.

The reasons for this belief are the following:

1. This point seems usually to be the centre of the abscess.

2. The condition is brought on by the same factors which bring on true epiphysitis, — slight trauma combined with the presence of the infecting organism.

3. The early symptoms are identical with those of acute epiphysitis.

4. These abscesses occur most frequently at the age at which epiphyseal injuries are most common.

5. The location of these abscesses, their course, their symptoms, and whole clinical history differs absolutely from those of abscesses originating in lymph nodes and also from those originating among the muscles and fasciæ.

On the other hand I have never found one of these extra-articular abscesses showing any erosion of the bones, though very frequently the periosteum is a trifle frayed and ragged close to the epiphyseal line as though it might have been perforated at this point. A case has already been mentioned in which an intra-articular abscess was proved to have originated thus.

There is thus probably in all these varieties of cases an infection beginning in or close to the epiphyseal line. Suppuration occurs. The pus spreads along the anatomical lines of least resistance. These depend on

1. The exact spot in the epiphyseal line at which infection occurs, which presumably is determined by the exact nature of some trivial trauma inflicted.

2. The exact anatomy of the epiphysis.

If the original focus of infection is at the periphery of the epiphyseal line the pus is very likely to get a vent into the surrounding tissues before any extensive damage is done to the epiphyseal line itself. On the other hand, if the infection occurs at the centre of the epiphyseal line the chance of a complete separation and consequent necrosis of the whole epiphysis is much greater. Apparently the suppuration spreads along the epiphyseal line until it gets a vent into the surrounding tissues. Thus it may extend on one side into a joint or on the other side into tissues outside the joint. This depends entirely on the anatomy of the region involved. Again, if the suppuration extends out at the edge of the epiphyseal line it may encounter periosteum which is uninjured and closely adherent to the bone, or it may encounter periosteum which through trauma has been partially separated from the bone. Possibly the ligaments about the joint may so re-enforce and thicken the periosteum as to make it easier for pus to dissect up the periosteum from the bone than to perforate the periosteum, although this is unlikely unless the separation of the periosteum has been begun by trauma.

These cases of dissecting periostitis occur usually in somewhat older children than do the cases with abscesses in or about the joints. While some apparently start at the epiphyseal line, in other cases the infection seems to be primary under the periosteum. The periosteal infections occur usually in the tibia or radius or ulna. They are especially common about the ankle and wrist, somewhat less common about the lower end of the femur. It seems reasonable to suppose, under these circumstances, that direct injury of exposed parts plays a most important part in the causation of these lesions.

A special case is that of G. W., a girl of twelve, who rode on the electric cars to Lowell on a Sunday last summer carrying a baby in her arms. She got rather tired but thought nothing special of it. Next day she felt poorly and lay around the house. On that Monday evening, about nine o'clock, she was seized with a sudden violent pain in the wrist which gradually extended up the forearm. She was unable to sleep at all after the onset of the pain, which was exquisite. She was seen in the Children's Hospital within forty-four hours of the onset of the pain. At that time the whole forearm was tremendously swollen, hot and red. No fluctuation could be made out. The edema was extreme. The radiograph taken at that time showed absolutely nothing abnormal in the bone itself. In only a small spot was slight elevation of the periosteum seen after the operation. She was operated upon

at once. The periosteum was found stripped off of the ulna for its entire length, although not everywhere for its entire circumference. An incision was made which slit the periosteum and overlying skin through the entire length of the bone. The pus had not perforated the periosteum and there was no evidence of disease in the medullary bone. The bone itself was a little rough near the lower epiphyseal line. It was not touched. The wound was left open for drainage. In a little over a fortnight the necrotic lower end of the ulna began to be pushed out from the wound. At the end of five weeks the entire necrotic shaft of the bone was removed leaving the new formed periosteal shell to form a new ulna. In twelve weeks healing was complete. (Figs. 5, 6 and 8.)

In this case the ulna became necrotic, not as a result of inflammation of the marrow but as a result of the interference with nutrition incident to the stripping off of the periosteum and the consequent destruction of the nutrient vessels. There was a necrosis but not an osteomyelitis.

The cases reported illustrate the following varieties of lesions originating in the epiphyseal line:

1. Acute epiphysitis resulting in the sequestration of the epiphysis and incidental involvement of the joint.
2. Acute epiphysitis with perforation into the joint resulting in an acute articular abscess.
3. Acute epiphysitis with perforation outside the joint into the extra-articular tissues. An extra-articular juxta-epiphyseal abscess.
4. Acute epiphysitis with extension beneath the periosteum, — a dissecting periostitis.

A dissecting periostitis is found occasionally away from the epiphyseal line and without evident lesion in the bone even on careful search.

Other epiphyseal lesions occur. Discussion of them is purposely omitted.

In the diagnosis of these infectious processes occurring in the epiphyseal lines and under the periosteum one must rely largely upon the clinical history and examination. It is impossible to differentiate absolutely the varieties of the more acute infections in bone except as one may draw inferences, doubtful, to be sure, but still of value from the history of the onset and course of the disease and from the age of the patient.

During infancy the wide area of cartilage and the vulnerability of the epiphyseal line give ample opportunity for suppuration to spread outward rather than to enter the shaft. As age advances and as the cartilage at the epiphyseal line becomes thinner and as the epiphyseal line itself becomes less well defined, the likelihood of sepsis spreading into the medullary cavity increases. Thus the infections involving no other part of the bone than the epiphyseal line are particularly to be expected in the youngest patients, and cannot possibly occur in adults. True osteomyelitis is more common in older children and any infection beginning at the epiphyseal line in adults must of necessity be a true osteomyelitis.

In older children dissecting periostitis is relatively common. The pain, and especially the tenderness and swelling in such cases, is usually more widely diffused than in an acute osteomyelitis.

The value and the limitation of radiographs should be clearly understood. In those taken early in the course of acute infections beginning in the epiphyseal line in infants and young children there is no reason to expect any change in the bone shadow.

In such cases the disease involves the cartilage which shows at best but vaguely even in the clearest radiographs. The most that might be looked for is an irregularity of the end of the diaphysis or a broadening or clouding between epiphysis and diaphysis. Neither of these points can be determined accurately or even approximately without wide experience.

Early in the course of infections under the periosteum the radiograph will show no change in the bone unless the slightest roughening of the outer part of the cortex. In due time the new forming periosteal bone may be seen separated very slightly from the underlying cortex.

Any thickening of the soft parts seen in the radiograph shows nothing more than what may and should be felt by the hand.

The negative value of a good radiograph, however, as showing the absence of any advanced lesion within the diaphysis, is often of the utmost importance and should never be disregarded.

A word should be said in regard to the mistakes in diagnosis which are most likely to be made. Infantile scorbutus especially may lead the surgeon into error. The hemorrhages in the epiphyseal line or under the periosteum produce extreme pain and exquisite tenderness. The symptoms simulate so closely those of pus in the same location that the possibility of the error should be kept constantly in mind. The relatively mild fever, the relatively slow onset, the presence of other signs of scurvy, are sufficient usually to make the diagnosis reasonably certain, provided scurvy is considered. The mistake thus is usually one of forgetfulness.

Congenital syphilis may often during infancy cause well-defined swelling and tenderness at the epiphyseal lines. Among older children, of course, the periosteal syphilitic lesions are very common. There is, however, little probability of such syphilitic lesions being confused with acute epiphyseal or periosteal infections. These manifestations of syphilis in more virulent cases may simulate the symptoms of a relatively mild scurvy.

Nature gives the key to the treatment of these cases. Attention may well be called again to the lack of damage done in children to joints which are filled with pus, provided free drainage is established. Secondary involvement of a joint in a suppurative process is usually of only incidental importance.

The point upon which the utmost stress should be laid is this: in children, especially young children, the acute bone lesion is usually at the onset an epiphysitis or a periostitis and not an

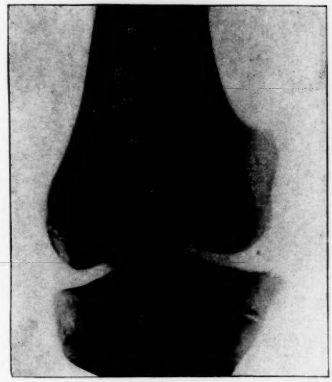


FIG. 1.

Knee of a girl twelve years. Abscess of knee-joint at six weeks of age. Irregularity of epiphyseal line showing origin of abscess in the bones and secondary interference with growth.

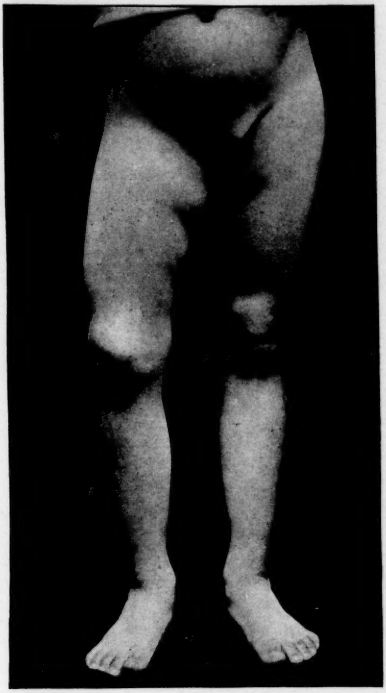


FIG. 2.

Right bow-leg in a girl, A. G., of seven years, who had abscess in knee-joint at one year. Note functional usefulness.

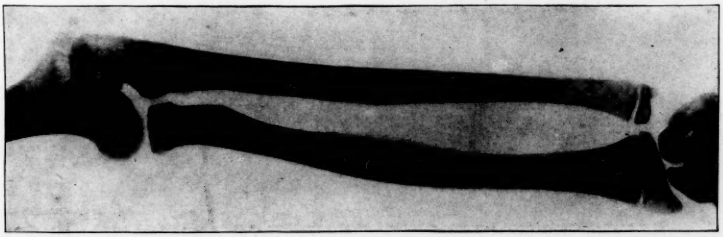


FIG. 5.

Periostitis of ulna: Whole length of bone denuded forty-four hours after onset of symptoms.



FIG. 6.
Extrusion of necrotic ulna by new periosteal bone.



FIG. 7.
Regenerated ulna twelve weeks after onset of first symptoms.

osteomyelitis. The bone marrow is usually not involved. The pus ceases to spread in bone or cartilage when once it has any other direction in which it may spread. It ceases to dissect up periosteum when it can go freely in any other direction.

Necrosis must follow inevitably upon an acute dissecting periostitis, owing to disturbed nutrition combined with the sepsis. True osteomyelitis may also follow, especially in the more chronic cases. The one indication for treatment is, therefore, to drain and to drain freely. The abscesses near the bone should be thoroughly explored to see whether any pus escapes from the bone. If it does the opening in the bone from which the pus comes should be enlarged sufficiently to give absolutely free drainage. But under no other circumstances should the bone be disturbed. Unless there is positive evidence that the pus comes from inside the bone when the pus has been found outside the bone one should no more drill through the cortex than one should explore the general peritoneal cavity after a localized abscess has been drained. I do not mean to give the impression that in cases of true osteomyelitis the bone should not be opened. Under such circumstances it must be opened. But in cases where the pus has been found outside and where there is doubt about pus within the bone it is safer not to touch the bone. To emphasize the risks involved I will mention two cases.

B. Y., a boy of two years, was suddenly seized with pain in the right lower leg, which was followed by increasing swelling. The skin was hard and tense, there was slight fluctuation at the inner side of the ankle. The temperature was 103°. There was a leucocytosis of 25,900.

An incision was made over the tibia just above the ankle with a free discharge of pus from beneath the periosteum. Two days later drill holes were made through the original incision into the tibia. No pus was found inside the bone. Two days later there followed a pneumonia at the right apex. Following that there was purulent discharge from both ears; later still abscesses appeared above the right clavicle, in the left axilla and in the left thigh; later still abscesses appeared above the scapula and on the right ankle and foot; then an abscess in the left groin appeared; four months later an abscess appeared near the hip. In time most of the abscesses healed up. The trouble about the hip persisted. A sequestrum was removed from the shaft of the right tibia. After a long time the child died of amyloid disease.

A boy of twelve was taken sick suddenly with a pain about the left ankle, accompanied by high fever, increasing swelling and tenderness.

At operation, a few days after the onset of the attack, pus was found under the periosteum at the lower end of the tibia. Although there was no evidence that pus came out from the interior of the bone a drill hole was made into the medullary cavity. No osteomyelitis was found. Two days later a similar process began in the right shoulder.

In these cases drill holes were made through an abscess cavity into the medullary cavity. In each case in addition to the inflammation in the bone marrow infections followed in remote parts of the body.

In a certain number of cases it is true that no matter what treatment is adopted more than one epiphysis is affected. Occasionally cases of multiple epiphyseal infections are seen. In other instances first one and then another bone may be involved.

It is quite common to observe, during the convalescence from acute epiphyseal or periosteal lesions, what seem to be abortive infections of a similar sort in other bones. Sudden pain near a joint accompanied by marked localized tenderness, slight edema, and associated with fever and other constitutional symptoms, may diminish within a few days and soon disappear completely under rest.

The lesions following the opening of the medullary cavity in the last two cases may, of course, have been merely coincidences. They are, however, certainly suggestive.

Exploratory drill holes into bone are to be condemned when the abscess is found outside the bone. If there is evidence of a true osteomyelitis more thorough drainage is demanded than that secured by drill holes. Either more or less is demanded. If there is an extensive osteomyelitis the drill holes are insufficient. If the trouble is outside the bone the drill holes are harmful.

The only rule for early treatment which can be laid down is to follow the pus to its farthest limits whether into the bone or not, and when this has been done the parts beyond should under no circumstances be invaded. The ultimate treatment must depend upon varying conditions to be met as they arise.

For the radiographs of those patients treated at the Infants' Hospital I am indebted to Dr. Dodd, of the Massachusetts General Hospital. For the others I am indebted to Dr. A. W. George, of the Children's Hospital.

At the conclusion of Dr. Stone's paper, Dr. Rotch spoke as follows:

Dr. Stone's paper is very suggestive, and illustrates our modern ideas in regard to the etiology of disease and its portals of entrance.

It is probably true that just as a lesion in the mucous membrane of the mouth or gastro-enteric tract renders the individual vulnerable to pathogenic organisms which otherwise would be unable to gain an entrance and to produce their specific diseased results, so a traumatic injury to the zone of proliferation may make the individual joints vulnerable at that point, and thus produce different lesions representing different specific infections.

In regard to the value of the x-ray in demonstrating lesions of the joints, it is very probable that the lesions are oftener demonstrable on the plate without being recognized by those who examine the plates. This may be because our eye is not yet sufficiently trained in this kind of

work to detect such lesions, and this is why so many clinical workers, who have had the sense of touch educated and developed through many years of practice, feel that their manual examination is more valuable than what they learn by the eye in attempting to read the plates.

This, of course, will be obviated in the future, when the sense of sight has been educated as much as the sense of touch has. When this has taken place there is not much doubt that the eye will prove to be superior to the hand.

Again, we are at present very much handicapped in a diagnosis by means of the ray by the fact that while we have learned to feel what is normal in examining a patient, we have not yet learned to recognize the normal living anatomy at different stages of development. Thus what would be normal in a joint of a young infant would be abnormal in that of an older child. Our study must be, therefore, to thoroughly educate our eyes in regard to normal living anatomy at all stages of development, and we shall then be in a position to make a much more exact diagnosis with the aid of the Röntgen ray. Until this is done, we are working comparatively in the dark, for we believe that both medical and surgical diagnoses in the future are to be wonderfully aided by means of the ray.

Another point which we should consider is this: it is not only wise, but almost necessary, until we are absolutely sure that we know the normal anatomy at different stages thoroughly, that we should, when examining a joint or shaft, have in our picture a corresponding joint or shaft of the same individual. Until our eye is better educated and our knowledge much greater, it is only in this way, by comparison with the other side, that we shall know whether such joint or shaft is diseased. Witness the slight degree of atrophy in the cortex of the bone which we might well read to be normal unless we had a bone on the opposite side to compare with it. This comparison in the use of the x-ray is just as important as we have for so many years found in the percussion of the lungs: comparing the resonance of the healthy side with that of the supposed diseased side.

Of course, in the very early stages of epiphysitis we cannot at present make a diagnosis by the ray, since such changes have not advanced far enough for the eye to detect them, but surely in these very cases touch would not detect, and in my experience on thoracic cases, the x-ray has many times shown what had antedated my clinical examination.

It is important to remember in all cases that owing to the anatomical peculiarity of the insertion of the joint capsule in different bones, the hip and shoulder joints are more likely to contain pus, in cases of suppurative separation of the epiphyses, than are the wrist and knee.

THE French Congress of Practitioners declared its approval of the plan to charge double rates for professional calls made on Sunday. — *Jour. Am. Med. Asso.*

AN OUTBREAK OF DIPHTHERIA DUE TO INFECTED MILK.

BY CHARLES HARRINGTON, M.D.,
Professor of Hygiene, Harvard Medical School; Secretary of the State Board of Health of Massachusetts.

ON April 13, after a period of comparative freedom from diphtheria, there were reported to the Board of Health of the town of Milton eleven cases of that disease. This sudden explosion caused, very naturally, a feeling of grave apprehension on the part of the local health authorities, who made immediate application to the State Board of Health for assistance in determining its origin. On the following day, another case was reported. Investigation showed that all of the cases reported on April 13, and single cases reported on April 12 and 14, had this in common: that the families of the victims were supplied, without exception, by the same dealer in milk, whose route lies partly in Milton and partly in Dorchester. Inquiry at the office of the Board of Health of the city of Boston developed the fact that on April 12, there were reported from Dorchester six cases; on April 13, nineteen cases, and on April 14, eleven cases of the disease, all in families supplied by this same dealer, whom we will designate as "A." Inquiry into the sources of his supply developed the fact that it was derived from six producers, as follows:

J. H., Randolph: 10 cans, some of which were bought of other producers; all delivered to "A." No diphtheria on the premises of J. H., or on those of the others who contributed to his supply.

R. B. N., Randolph: 4 cans, all sold to "A." No diphtheria.

E. T. T., Randolph: 3 cans, some sold at retail and the rest to "A." No diphtheria on his premises or among his customers.

O. H., Milton: 7 cans, all sold to "A." No diphtheria.

J. M. B., Milton: 4 or 5 quarts, all sold to "A." No diphtheria.

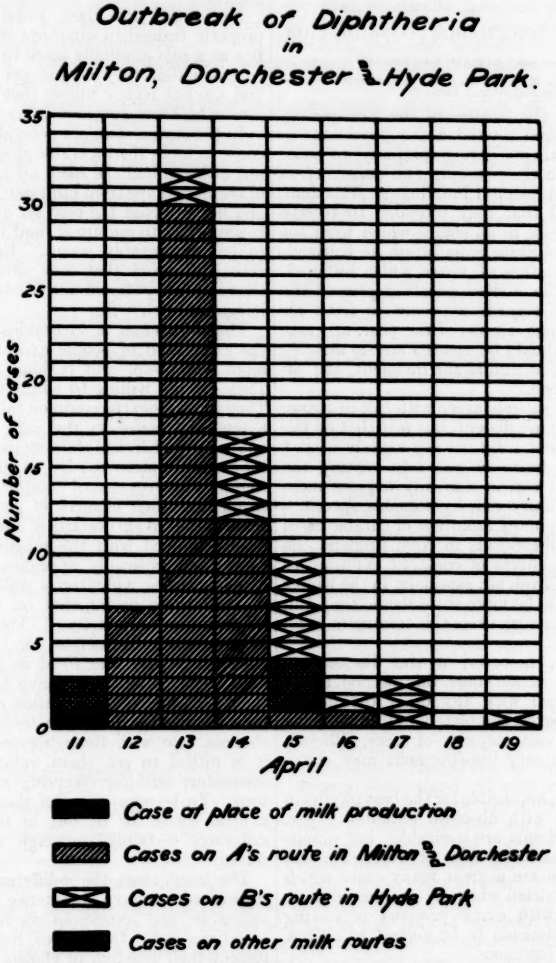
C. F. J., Milton: 27 cans, 17 sold to "A" and 10 to a dealer in Hyde Park, whom we will designate as "B."

Inquiry as to the existence of diphtheria on the premises of C. F. J. revealed the fact that his grandchild was seized with the disease on April 11; that the cooler in which the milk was mixed was washed in the house; and that this office was performed by the person who had the care of the sick child.

It appeared probable that herein lay the solution of the problem, but the absence of any reported outbreak in Hyde Park offered an obvious complication, since more than one third of C. F. J.'s output was delivered to families in that town by dealer "B." On April 14, however, four cases; on April 15, five cases; on April 16, one case; on April 17, three cases, and on April 19, one case, or fourteen in all, were reported to the Board of Health of Hyde Park, all of which and two that had been reported on April 13, without exciting comment, proved to be in families supplied by "B."

Prompt action on the part of the local authorities of Milton in excluding from sale the milk of C. F. J. brought the outbreak to an immediate close. The incidence of the cases is shown by the accompanying diagram. It will be noted that in the three places concerned there occurred, between April 11 and 19, five cases among families not supplied by "A" or "B," namely, two on April 11 and three on April 15. One of the former was reported in Dorchester, the other in Milton; and the three cases reported on April 15 were all in the same household with, and secondary to, the latter.

There were, then, between April 12 and 19, inclusive, in the three places mentioned, 72 cases of the disease, all but three of which occurred in families supplied by two dealers, who obtained their milk from a man in whose household a child was seized on April 11, and the three cases not connected with this supply were secondary to another case reported on the same day. The fact that the outbreak in Hyde Park occurred later than that in Dorchester and Milton may perhaps be due to the fact that dealer "B" called for his share of C. F. J.'s milk in the evening and sold it on the following day, while dealer "A" came for his in the morning and disposed of it at once.



It is of further interest that C. F. J. himself came down with the disease after the outbreak had nearly subsided, and that dealer "A's" son, who drank milk from C. F. J., was one of the earliest victims. The partner of dealer "B" was seized on April 18 and at about the same time also another member of his household.

COLD AIR IN INCURABLE CONSUMPTION.

BY HERBERT C. CLAPP, M.D., BOSTON,

Visiting Physician to the Massachusetts State Sanatorium for Incipient Consumptives at Rutland.

NOT long ago the trustees of the Boston Consumptives' Hospital invited a few physicians to come to one of their meetings prepared to make suggestions as to the planning and construction of their proposed hospital buildings at Mattapan. They announced that they intended to receive cases of the disease in all stages which were not acceptable at the State Sanatorium at Rutland.

In the presentation of views which followed, one or two of the invited guests expressed the opinion that, as regards exposure to fresh air during the different seasons of the year, all cases of consumption should be treated *exactly alike*,—the far-advanced as well as the incipient, and all the grades between.

As I could not entirely agree with this doctrine, I tried to express my dissent, but fear that on the spur of the moment I did not say exactly what I meant. I now desire to put into writing the opinions which I can in this way express more clearly than in hasty extemporaneous speech.

Having seen in many hundreds of curable cases of pulmonary tuberculosis in New England the really wonderful effects of constant exposure to large amounts of fresh air, especially in the winter time, no one could be more enthusiastic than I in recommending for such cases this treatment in all its thoroughness.

Unfortunately, however, if the disease has passed beyond a certain stage, this method, either alone or combined with any other therapeutic measures whatsoever, completely fails in inducing recovery in the vast majority of cases, although in them a temporary improvement may sometimes follow.

It is, of course, impossible for the best physician always to state with absolute infallibility just exactly what patients are incurable; but practically every fair-minded man of experience will admit that there are a great many cases which come to the physician which he can decide to be thus incurable with every prospect of having time prove his decision to be correct in all but exceedingly few instances.

Now, admitting this, shall we give to such consumptives as these as much cold air as we would give to incipients? I should say that sometimes we should and sometimes we should not. Of course, I presuppose that nowadays everybody would advocate what is generally called "good ventilation" even in the worst of these cases, the windows being open more or less and the room being heated; but this is not the modern fresh air treatment.

For our present purpose we can divide incurable cases into four classes: First, those who really enjoy the cold air; second, those who dread it and really suffer from it; third, those who dread it and suffer from it but think they ought to submit themselves to it; and fourth, those who are indifferent.

As to the *first* class, those who have been properly trained in sanatoria or in private practice as a rule gradually learn to love the fresh air so much that they cannot get along without it and are not happy unless they have it. By all means let them continue to have it.

In the *second* class are generally those who first come to us in the incurable stage and who have not hitherto had the fresh air treatment. Many of them, perhaps from improper habits of thought and living, dread the cold air and suffer severely if compelled to endure it, and beg to be allowed to be comfortably warm. Repeated trials in actual life prove that they never do get used to the cold. They should not be compelled to endure it against their wills.

The *third* class of incurables comprises much the same kind of people except that they have more will power and perhaps more endurance. They are not willing to admit their incurability. They know from the common talk that fresh air is a powerful factor in the cure of consumption; and with the heroism characteristic of old martyrs they make a stern resolve to submit themselves to it at whatever cost of comfort. In like manner, to increase their chances of getting to heaven, some of the old enthusiasts of a former generation, deeply imbued with the religous ideas of their times, and especially apprehending the beauty of self-sacrifice, voluntarily walked with pebbles in their shoes or inflicted on themselves some other unnecessary tortures. They were willing to inconvenience themselves for the object to be gained. If they had lived in these times, perhaps some of us might have tried to persuade them that such self-abnegation as that, and such useless sufferings did not materially increase their chances. So with these hopeless consumptives, it is pitiful to see them voluntarily incurring discomfort without receiving any adequate return. To be sure, some of them might breathe a little easier for it, but in most cases their sufferings certainly outweigh any benefits received.

The *fourth* class, the indifferent, we should try to persuade to have abundance of air, if not disagreeable, and sometimes we may succeed and sometimes not. In all cases, however, we should respect their freedom of choice.

In fact, in my opinion, the last point is the keynote to the whole situation with all four classes. If we have good reason to think that they cannot get well, let us be really kind to them by allowing them to choose (perhaps after trying both methods) whether they shall be continuously exposed to the cold fresh air of winter or not.

In order to give them this choice, hospital

buildings designed for such incurables should be more substantial in character than the cheap shacks often used for cases which belong to the possibly curable class, and should be capable of being well heated.

At this same meeting it was also argued that if any discrimination were made as to exposing patients to fresh air, those who received the least would thereby consider themselves as notified that they were incurable and would be correspondingly unhappy, and that this was a further reason that all should be treated alike.

Now I believe that the old-fashioned *spes phthisica* has not yet been abolished, but rather intensified, since the days of the marvelous increase in the percentage of recoveries from tuberculosis; and I doubt if a large number of patients would seriously take this implied notification as meant for themselves. When a clergyman points out the sins of his congregation, each one complacently thinks his neighbor is meant and not he. The incurable consumptive can foresee the fatal ending of the other man's case much easier than that of his own. He himself is going to get well after a while.

But, on the other hand, even if our willingness to allow him to be warm and comfortable does suggest to him an unfavorable prognosis, is this really undesirable?

On account of religious or financial or other reasons a great many people consider it their duty to tell those who are near and dear to them if they are not likely to live, in order that they may make proper preparation. Not infrequently even then they refuse to believe it. From a moral standpoint some people think it actually wrong to deceive advanced consumptives, when we think they have little or no chance of recovery; and it is very doubtful if at such times a lie either by word or implication materially increases their chances. So that, it seems to me, this argument is not prohibitive of our giving such patients their perfect freedom of choice as to exposure to the cold air of our New England winters. If others of large experience think differently, I should like to know it.

Medical Progress.

PROGRESS IN PEDIATRICS.

BY THOMAS MORGAN ROTCH, M.D., BOSTON,
AND
JOHN LOVETT MORSE, A.M., M.D., BOSTON.

STENOSIS OF THE PYLORUS IN INFANCY.

THIS condition is attracting so much attention at present that it seemed worth while to take up the literature of the subject, a subject which most of the readers of the JOURNAL are undoubtedly already somewhat familiar with. Dr. C. L. Scudder published a carefully described case in this journal April 27, 1905. Drs. Townsend and Scudder detailed another case, with operation and recovery Dec. 14, 1905. Dr. Scudder contributed to the JOURNAL another and more important article Feb. 22, 1906. In the meantime Drs. Scudder and Quinby contributed a fuller statement to the *Journal of the American Medical Association* May 27, 1905, which contained an analysis of 115 cases, and brought the subject very well up to date. They state in this paper that they "very much doubt the permanence of the cure in cases treated medically," and that "to withhold operative treatment after the diagnosis of pyloric obstruction has been made, leaves the case practically hopeless, according to the evidence available." They quote Monnier as thinking that the mortality without operation is about 80%, and say that they "are persuaded that if the truth were known, the medical mortality would be above this figure." They quote 60 operations, with 32 recoveries and 28 deaths, giving a general mortality of 46.6%. These operations were performed by 28 different men in the seven years after 1898. They state that "no apologies are needed to the critics of surgery for the comparatively large mortality of 46.6%. Had not these particular cases been operated on, they all probably would have died. Many were almost moribund when placed under surgical care. Medicinal treatment has yet to demonstrate its power to cure this affection. Surgery, on the other hand, has proved its ability under adverse circumstances to cure more than half the cases intrusted to it."

A moderately careful review of the available literature shows that a considerable number of cases have been operated on recently, and that a number of others have been reported as cured by medical treatment. As in the past, the cases have been reported by the Germans, English and Americans, although the French are now beginning to recognize the disease. Some mistakes may have been made in analyzing the English cases, as some of them have been reported in several different places.

Thirty-one cases have been operated on by 22 different operators, with a mortality of 15, or 47%; no improvement over that in past years, although better figures might have been expected because of the better knowledge of the disease and the greater experience of the operators. The 15 fatal cases (Barling, Carpenter [3], Carpenter and Mummery, Cautley, Fischer and Sturmdorff, Morse and Murphy, Nicoll, Ramsey, Robertson, Rogers, Sutherland, Thompson, Walls and Andrews) were operated upon by twelve men, the time of the operation after the onset of the symptoms being two and a half, three, three, three, four, four, five, five, ten and twenty-two weeks in the cases in which it was noted. Death occurred in eight cases in thirty hours or less; one died in five days of bronchopneumonia, one suddenly in five days without apparent cause, another in two weeks from peritonitis caused by a hernia of the bowel, and still another after two weeks from gradual failure. Gastro-enterostomy was done in nine cases, a Loreta operation in two, and a pyloroplasty in another.

The 16 cases (Capps and Bavan, Cautley, Keefe, Kimball and Hartly, Nicoll [5], Rogers and Howland, Sarvonat, Scudder, Townsend and

Scudder, Walls and Andrews, Rotch and Murphy) which recovered were operated on by ten different men, the interval between the onset of the symptoms and the operation in the 6 cases in which this is given being two, three, three and one half, four, six and nine weeks, respectively. A gastro-enterostomy was done in eight cases, a Loreta operation in one and a pyloroplasty in another. The patients were well two and one half, two and one half, three, three and one half, four, five, five, six, twelve and eighteen months after the operation. In one, however, the digestion was still feeble after six months. The youngest patient successfully operated on was that of Scudder at two weeks. It must be recognized that these cases operated upon represent the more severe types. Also that cases of pyloric stenosis if left until they are *in extremis* before operation will almost invariably die; witness the case of Morse and Murphy, where the infant was acknowledged to be practically moribund when operated on. In contrast are the later cases reported by Rotch and Murphy, where two successive cases which when operated on showed a true hypertrophic stenosis, recovered. None of these cases, however, were by any means moribund, but were losing so rapidly in weight that it was evident that they would die unless relieved by operation. It is, in fact, highly probable that most of the fatal operative cases were too much reduced to obtain a favorable result with operation, and that more attention should be paid to cases operated on early.

On the other hand, it is especially necessary to recognize that the differential diagnosis between severe cases of difficult feeding and spasmodic partial stenosis is exceedingly difficult, and to our minds not to be accepted unless those who have treated them medically have used breast milk, or are known to be thoroughly posted in the modern American methods of substitute feeding. We therefore look upon the comparatively large list of German and French cases with some distrust, and do not by any means take such statistics as final.

Morse and Scudder, as spoken of in Scudder's paper, take the ground that the usual custom of giving very small amounts of food at frequent intervals after the operation results in the nutrition not being properly kept up. They therefore advise giving the usual amount of food for the age at the usual intervals, since there is no risk of the wound in the stomach giving way, at any rate during the first week, and because the nutrition can be kept up much better in this way and the prognosis thereby materially improved.

Rotch and Murphy, on the contrary, hold that this view is open to question. In their opinion it is not alone a question of the strength of the suture line, but, primarily, one of maintaining the general strength and not upsetting the digestion. According to them it has been proven definitely, they think, that on the small amounts of food — as shown by two of their cases — the strength may be maintained, and that probably on these small amounts there is not so great a chance of upsetting the digestion. One would not ask an atrophied muscle to assume full function at once, therefore why ask the gastro-intestinal tract to do so? In fact it is probable that there is always a slight paralysis of the gastric muscles for some time after operation, a condition which Rotch and Murphy found to call for the most careful regulation of the food by giving small amounts of food and feeding as one would a difficult case of indigestion for some time. The larger and normal amounts of food at once caused a recurrence of the vomiting in their cases during the first forty-eight hours after the operation.

The condition of the pylorus found in the operative cases did not differ from that which has been described in the past. The condition of the stomach wall and the presence or absence of dilatation of the stomach was not noted in most cases. The wall was thickened, however, more often than it was not and the stomach was seldom dilated. Dilatation of the stomach was noted clinically before operation in eight cases and the absence of dilatation was noted twice. Visible peristalsis was noted in sixteen cases. No mention of it is made in the others. A tumor was noted in eleven; no tumor was found in six.

Autopsies were performed on six cases which were not operated upon. Among these should be noted the case of Audry and Sarvonat, the first French case reported. The condition of the pylorus in these cases was the usual one. Thickening of the stomach wall was noted in two and a normal condition in two. No dilatation of the stomach was found in two cases, there being no data in the others.

Much has been written during this period regarding spasm of the pylorus. Wernstedt studied pathologically the stomachs of several hundred normal children and sixteen with stenosis of the pylorus. All of these sixteen were less than eight months old and all belonged to Hirschsprung's type. There was hypertrophy of the muscles of the whole stomach in all. This, he believes, proves that they are spastic in origin. Hence he claims that the term " congenital " is unsuitable, and that the term " pyloric spasm " or " spastic pyloric contracture in infancy " should be used. He found that the relations between the longitudinal and circular fibers of the pylorus were the same as in the normal stomach. Otherwise his observations on the pylorus agree with those of other observers. On the other hand, Wernstedt's observations concerning the hypertrophy of the muscles of the whole stomach have not been universally substantiated by other observers. Even if an hypertrophy were found, it might be explained, as suggested by Murphy, as secondary to the obstruction, just the same as the intestinal wall may hypertrophy above an obstruction.

Heubner claims to have seen 49 cases of spasm of the pylorus amount ten thousand illnesses of all sorts in childhood, giving a frequency of about .5%. Eliminating cases which might be criticised, he has 41, 20 of which were seen but once in consultation. Two of these are known to

have died and 6 others to have recovered. The other 21 cases were in his own practice and were carefully followed. Only 2 of these died, giving a mortality of 9.5%. Both of these infants belonged to the same family which had already lost another infant from what was probably the same disease. The vomiting began at birth in 5, in the first month in the vast majority, and in the first two months in all, which he thinks is early enough to warrant the assumption that the disease is congenital. He believes, however, that too much attention is paid to the vomiting, and that the vomiting does not coincide with the beginning of the disease. Eleven of 33 cases were nursed by their mother and 14 had wet nurses; only 3 were entirely artificially fed. The vomiting was usually in large amounts and forcible, and in three fifths of the cases the condition had become urgent in a few weeks. Hyperchloridia was not found in the few cases which were studied chemically. He believes, moreover, that if it is present it is not the origin of the disease, but merely an irritative phenomenon of secretion in the same way that spasm is of motion. There was visible peristalsis in all of his cases. No note is made, however, as to the presence or absence of tumor. The general condition was always poor. He gives the histories of a number of cases in detail in order to prove that his cases were as severe as those of others. He has seen only one case of this condition at autopsy, but says that neither this case nor the descriptions and pictures which he has seen has been able to convince him that Hirschsprung's stenosis of the pylorus is an organic disease, a new growth or a malformation. He states that Wernstedt was able to demonstrate a continuous series of changes from the anatomical conditions found in the strongly contracted pyloric part of the normal stomach to the most intense cartilaginous tumor presented by the stomach of the infant dead with the symptoms of uncontrollable vomiting. He states that there is nothing unusual or abnormal about the condition, which is merely an exaggeration of the normal. The only pathological anomaly is muscular hypertrophy, which is present not only in the pyloric region, but also in the rest of the stomach. [The notes just given as to the thickness of the stomach wall in the operated and autopsied cases are interesting in this connection.] He quotes Ibrahim as showing that the stomach is not dilated, but smaller than normal. [The notes just given on this point in the operated and autopsied cases are also of interest.] He maintains that the primary condition is not stenosis of the pylorus, but spasm of the stomach muscles, and that the visible peristalsis is mainly primary and only in part due to obstruction at the pylorus. He believes that as the visible peristalsis is not a sign of obstruction at the pylorus, but of muscular spasm, that it is present before vomiting begins, and that as vomiting is often present at birth, the disease may have been present in fetal life. Further arguments in favor of the congenital origin of gastrospasmus are found in the family disposition to the disease and in the nervous heredity so frequently present. He states that since he considers congenital gastrospasmus to be a primary spastic condition, in which the difficult passage through the pylorus is more spastic than mechanical in origin, his treatment is based on this belief, and that as he has seen all of his cases, with the exception of those in one family, recover under dietetic treatment, he can never make up his mind to recommend operative interference. Naturally he does not place the greatest importance upon diminishing the vomiting directly, but upon removing the muscular spasm, which is the cause of the vomiting. He thinks that washing out the stomach and the giving of small amounts of nourishment frequently are likely to increase the irritative condition. He believes that the first principle of treatment is forbearance, and that the stomach must be allowed to rest as much as possible. He therefore abstains from stomach washing and feeds the children at the longest possible intervals. He then lets them drink and vomit as much as they wish, believing that what remains in the stomach will be more easily carried through after the pylorus has been rested for a long time. He believes that breast milk is the best food, but that recovery will take place under various kinds of food. He recommends warm poultices very highly, and gives a high injection of water at body temperature daily. He gives anti-spasmodic drugs, such as opium and atropine, by rectum rather than by mouth.

The turn for the better in the nineteen cases whose course he was able to follow came in the comparatively short time of from seven to fourteen days or a little longer. Improvement was slow and interrupted by frequent relapses in seven. There was a sudden turn for the better, followed by a long and tedious relapse, in three, while nine remained perfectly well. Four later showed various nervous disturbances, and in two sensitiveness of the stomach persisted for years. Another suffered from periodic vomiting.

It seems to us that Heubner's statements, as just quoted, are not convincing. For cases of true hypertrophic stenosis the improvement was remarkably rapid. Certainly, on any basis of treatment, in forty-nine observed cases the observer should have seen more than one post-mortem specimen. Also, it is hard to reconcile his opinion that the condition is one of spasm of all the stomach muscles when we consider the immediate relief these cases get after operation.

Whatever opinions may be held, however, as to the correctness of Heubner's view as to the nature of stenosis of the pylorus in infancy, there has certainly been reported within the last two years a very interesting series of cases. A tumor was felt in the region of the pylorus in a number, and in nearly all of them there was visible peristalsis. These cases seem worthy of detailed mention. All had the typical symptoms of vomiting and emaciation and most of them were constipated. Morse recognized his case to be one of spasm — not an actual hypertrophy — and it is probable that some of the

others were cases of simple spasm. Special note will be made only of the size of the stomach and the presence or absence of visible peristalsis and tumor. They are arranged roughly according to the treatment employed.

Reinach: Visible peristalsis: not tumor. Breast feeding, condensed buttermilk, gradual resumption of milk feeding. Lavage. Symptoms gone after four and one-half months.

Marx: Visible peristalsis; no tumor. HCl—. Breast, small amounts often. Lavage. Poultices. Rapid recovery after two and one-half months. Well at seven months.

Marx: Slight dilatation; visible peristalsis; no tumor. HCl+. Breast, small amounts often. Karlsbad water at each feeding. Lavage. Poulticing. Improvement in one month. Well in two months.

Murdock: Visible peristalsis; no note as to tumor. Lavage. Doing well after seven months.

Kerley: "All classical signs." Small quantities of breast-milk. Daily lavage. Recovery.

Morse: Stomach not dilated; visible peristalsis; no tumor. Vomitus acid. Breast-milk at usual intervals for age + lime water. Recovery in seven months. Well at two and one-half years.

Harper and Harper: Visible peristalsis; tumor. Best results from small amounts of peptonized milk at very frequent intervals together with injections of normal salt solution, one half pint, twice daily. Recovery at eight months. Well at one year.

Griffith: Dilatation of stomach; visible peristalsis; no tumor. Careful feeding and lavage. Well in four months.

Blaxland: Visible peristalsis; tumor. Acidity increased. Humanized milk, small amounts often. Lavage. Recovery at eight and one-half months. Well one month later.

Sutherland: Visible peristalsis; no tumor. Daily lavage. Breast milk at short intervals in small amounts. Marked improvement in three weeks. Peristalsis ceased in two months. Well two months later.

Sutherland: Dilatation of stomach; visible peristalsis; tumor. Daily lavage. Small amounts at short intervals. Improvement at once. Well in three months.

Berkholz: Two cases reported in great detail. Very small amounts of food. Infants were able to gain on 65 C per kilo. Minimal amount of food an important factor in treatment.

Hutchinson: Stated at Toronto meeting of British Medical Society that in the last two years he had seen eight well-marked cases with all the classical symptoms recover entirely under medical treatment. In one some dilatation of the stomach remained.

(To be continued.)

Reports of Societies.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

SEVENTH TRIENNIAL SESSION, WASHINGTON, D. C., MAY 7 AND 8, 1907.

FIRST DAY.

THE Congress was opened at 4 P.M. by the President, DR. REGINALD H. FITZ, Boston, Mass.

EVOLUTION OF THE IDEA OF EXPERIMENT IN MEDICINE.

DR. WM. OSLER, Oxford, England, read this paper. He said, that man can interrogate as well as observe nature was a lesson slowly learned in this evolution. Of the two methods by which he could do this, the mathematical and the experimental, both had been equally fruitful; by the one he had gauged the starry heights and harnessed the cosmic forces to his will; by the other he had solved many of the problems of life and lightened many of the burdens of humanity. He traced the beginnings of experimental science from its foundation with the Sumerian race. These old Greeks had anticipations of nearly every modern discovery and there were details of one fundamental experiment, that of the discovery by Pythagoras, of the dependence of the pitch of sound on the length of the vibrating chord. The Greeks, however, did not add to their genius for brilliant generalization and careful observation the capacity to carry out experiments, and neither Plato nor Aristotle understood the value of experiment as an instrument of the progress of knowledge. Hippocrates had appreciated the fact more than any of his contemporaries, but even to him facts obtained by observation were the beginning and end of the art. The great masters of the Alexandrine school were the first and great anatomists, and they had an extraordinary quality of zeal for experimentation which, according to Celsus, led to the vivisection of criminals. Among the Empirics arose the science of toxicology and the study of poisons and their antidotes, and not only animals but criminals were used to test the effects of poisons and the idea of protection by gradually increasing doses of the poison, and the use of the blood of animals rendered immune were understood. Galen was not a greater observer than Hippocrates, but he stood out in our history as the first physician who had a clear conception of medicine as a science. In brilliant experiments upon the heart and arteries he had almost demonstrated the circulation of the blood, and in his work on the nervous system he had anticipated the discovery of Bell and Marshall Hall and laid the foundations for our knowledge of the physiology of the brain and spinal cord. In none of the writings of the Arabian school was there to be found any solid contribution to anatomy or physiology. Gradually, however, the paralytic-like torpor passed away and independent spirits like Paracelsus defied all traditions and threw the doctrines of Galen and Avicenna to the winds. Throughout the sixteenth century, however, there had been very little experimental work in medicine. Then came the instruments of precision in medicines with the construction of the thermometer by Sanctorius and the pulsilogium of Galileo. Contemporaneously with Sanctorius, Harvey had demonstrated the circulation of the blood, but neither Sanctorius nor Harvey had had the immediate influence upon their contemporaries which the stimulating character of their work justified. In the latter half of the eighteenth century experimental science received its greatest impetus through the work of Spallanzani who demonstrated the chemical nature of the digestive process and John Hunter who was able to raise pathology into a science. In the beginning of the last century the art of observation had found its fullest development in the hands of the French school, by which the diagnosis of disease was put upon a sound basis, and in the forties, Virchow revealed for the first time the true seats of disease. The last half of the century could be called the era of of experimental medicine and the great results had been along three lines,—the discovery of the functions of organs, the discovery of the causes of disease and the discovery of new methods of treatment. A single generation had witnessed a complete readjustment of our outlook on physiology, pathology and practice, and this had all come from a recognition that experiment is the very basis of science. Only a beginning

had been made, however, and there was not a department in practical medicine in which there were not innumerable problems awaiting solution, and what was needed was clinicians who could keep in close touch with physiology, pathology and chemistry and who were prepared to transfer to the wards through proper channels the knowledge of the laboratory.

NEUROLOGICAL AND PSYCHIATRIC DIAGNOSIS.

DR. LEWELLYS F. BARKER, Baltimore, Md., said that no hard and fast line could be drawn between laboratory and clinical diagnosis; the clinic was the mother of the medical laboratory. The anatomical laboratory dated back three hundred years, but the physiological, pathological and chemical laboratories were creations of the nineteenth century. The establishment of psychopathic laboratories now promises to be of great significance in the advancement of psychiatric diagnosis. The diagnoses of nervous and mental diseases had made but slow progress until very recent times. The relation of symptoms to lesions in neurology were more difficult to determine because of the difficulties in opening the brain and getting at the seat of the trouble. It was much easier to study alterations in the liver or kidneys than to investigate the lesions of the central nervous system, and yet, as has been said, a pin prick in such a part might cause more damage to the general system than the passage of a crowbar through another. Slow but sure progress, however, has been made by the study of autopsies. Helmholz's invention of the ophthalmoscope has done much to advance the science of neurology and every neurologist now makes use of it. The tendency of modern psychology was to become more and more objective and in this way only was it possible to obtain scientific results. The certainty with which a diagnosis in dementia paralytica could now be made was one of the great advances in psychiatry. Dr. Barker thought that a great impetus would be given to this work if psychiatric clinics could be established in connection with every hospital and medical school in this country, and he expressed the hope that that would soon be done.

ON CHEMICAL AND BIOLOGICAL DIAGNOSIS.

DR. ALFRED STENGEL, Philadelphia, had been led to the conclusion that the work of the laboratory man, whether in chemistry or biology, must be constantly checked by the equally important work of the clinician, just as the work of the clinician requires the check of the laboratory worker. His results might be far more erroneous than those of the clinician but they might be able to advance the science in a way that would never be possible by mere clinical observation. The introduction of chemistry into medicine had begun with the discovery of oxygen, when the possibility of estimating the oxidation going on in the living body was shown. It had been thought then that this would throw a great deal of light upon diseased processes, but so far as diagnosis was concerned the most important thing we had learned was that in diseases where oxidation is supposed to be reduced, a reduced oxidation doesn't really exist, as in anemia. It had been thought that the amount of oxidation might be obtained by the studies of urea in elimination, but the estimates of urea, without taking into consideration the question of absorption and the intake of food, were absolutely worthless. So far as the total nitrogen is concerned the same thing could be said. As to the production of uric acid and its estimation, fanciful theories of uric acid diathesis had been abandoned. As to the carbohydrate metabolism the presence of sugar in the urine was shown to be an abnormal condition and when combined with certain clinical symptoms constituted the disease of diabetes. The most important principle that physiological chemists discovered, perhaps, was that the defence of the body against chemical poisons is due to a pairing with other substances in the body, as of one of the acids with an alkali; that urea and bile salts combined with other substances for their elimination. This theory of pairing had led to the discovery of the only genuine auto-intoxication of which we had any accurate knowledge, that of acid intoxication which occurs in a variety of conditions. In diseases of the stomach a great deal had been expected from investigations of the gastric juice, but the quantitative estimates of the stomach contents had not proven as valuable as studies of the motility of that organ. Conrad's method for diagnosis of typhoid the writer considered an improvement over the Widal reaction. As to tuberculin he thought the views of Dr. Trudeau deserved more general acceptance, namely, that if carefully used small amounts of tuberculin were safe and the diagnosis is greatly facilitated by its use. With regard to the opsonic index there could hardly be a positive expression of opinion as yet and certainly the difficulty of making the examinations rendered the test of doubtful value to practitioners.

PHYSICAL DIAGNOSIS.

DR. RICHARD C. CABOT, Boston, hoped that this congress and the year 1907 would mark an end of the false and harmful distinction between the laboratory and clinical methods of diagnosis, for the distinction could not be defined and did not in fact exist, although we attempted sometimes (and most disastrously) to approximate to it. There should be no diagnoses made merely in the laboratory and none merely at the bedside. The degree of exactness in any technical procedure depended wholly on the end to be secured. We might have too much exactness as well as too little. But we could not have too much clearness in the expression of our results. Modern physical diagnosis showed (among others) two dominant tendencies: (*a*) to seek for and prize the most direct methods of examination; (*b*) to lay stress upon the present functional capacity of an organ rather than upon the present appearance of anatomical lesions. The writer believed that the oldest methods — inspection and palpation — are still the best. Among recent additions to our technical resources three could be mentioned as likely to stand the test of time. These were: (*a*) x-ray examination; (*b*) blood pressure measurements; (*c*) palpation of the abdomen beneath the surface of the warm bath. In the examination of sputa we had progressed from the complex to the simple. Reduced to its essentials sputum work to-day meant a good look at the sputum in bulk, the judicious use of one's nose and the search for tubercle bacilli. Curschman's spirals, Charcot Leyden crystals, fibrous casts, influenza bacilli, yielded no clews for diagnosis, prognosis or treatment.

THE BORDER LAND OF MEDICINE AND SURGERY.

President's Address. DR. REGINALD H. FITZ, Boston, delivered this address. (See JOURNAL, May 23, p. 655.)

SECOND DAY.

Subject considered:

THE COMPARATIVE VALUE OF THE MEDICAL AND SURGICAL TREATMENT OF THE IMMEDIATE AND REMOTE RESULTS OF ULCER OF THE STOMACH.

INDICATIONS FOR, METHODS OF, AND THE RESULTS TO BE EXPECTED IN THE MEDICINAL TREATMENT OF ULCER OF THE STOMACH.

DR. JOHN H. MUSSER, Philadelphia, opened the discussion of this subject and after reviewing voluminous

statistics, concluded that gastric ulcer is a medical disease. Gastric ulcer with complications and sequelæ is sometimes a surgical disease. That if perforation occurs it becomes a surgical affection at once. If hemorrhage occurs acutely it is rarely a surgical affection; if repeated and chronic, it is surgical. If the ulcer is productive of perversion of secretory function alone, it remains a medical affection. Inasmuch as hyperchlorhydria is in part a neurosis, the secretory function can be balanced chiefly by medical, dietetic and hygienic measures. Even if pyloric spasm attends the hypersecretion and hyperacidity, it does not necessarily take the case beyond medical care. It is wrong to submit such a class of cases to operation, unless motor disturbances come to the foreground. If the symptoms and physical signs of retention from obstruction, dilatation, hour-glass contraction, or adhesions supervene and persist, the case is a surgical one. If the symptoms of gastric ulcer become continuous in spite of medical treatment and incapacitate or threaten life, if hemorrhage recurs and secondary anemia arises, it is a surgical disease. Such cases are always attended by organic sequelæ. The extraordinary frequency of chronic gastric ulcer with sequelæ requiring operation at the present day is due to neglect of the treatment of an ulcer in its incipiency. Statistics show that most cases are operated on between the thirtieth and fortieth years and have an ulcer history of five to ten years' duration. The evidence is not sufficient to show that gastric ulcer is a forerunner of gastric cancer. After the surgical procedures of necessity are carried out, the case must be treated medically. Medical treatment must be continued over a period of four months at least; hygienic and dietetic over a period of years; the best permanent relief and the most complete restoration to health occur in those cases which recover after perforation of the gastric ulcer; an operation which, if possible, could approach this accident in an anatomical result would be the best.

DR. CHARLES G. STOCKTON, Buffalo, N. Y., said that Dr. Musser had assembled the evidence that recent experience had made possible in the medical treatment of peptic ulcer and pointed out what advance had been made; to decide, in view of all these facts, the most judicious course to pursue, without attempting to press overmuch the importance of any particular method of treatment, was a task. Did we permit ourselves to champion some method with the zeal that success in a comparatively small group of cases sometimes suggests, we would undoubtedly fail. It was very important at this period not to array against each other the comparative advantages of medical and surgical practices. Rather there should be made the deliberate effort so to view the matter that we might concur in deciding more the place of each in the treatment of this disease. We should attempt to exclude certain cases that closely resemble in symptomatology peptic ulcer, but in which, despite the occurrence of pain, tenderness, spasm, vomiting and hemorrhage, no ulcer actually exists. He denied that it was always true, as had been asserted in some quarters, that these cases do in fact suffer from undiscovered ulcer or fissure, because oozing of blood might be seen through the turgid, deeply congested mucosa, that showed no lesion even under the magnifying glass, and because superficial erosions or fissures in an otherwise healthy stomach are rapidly cured by nature and are practically without symptoms. Those ulcerated processes dependent upon special infections, like syphilis, tuberculosis and pyemia, should be excluded from the consideration. There remained two distinct divisions of peptic ulcer; first, the more frequent type, the acute, which occurs in younger patients and appears often in chlorotic young women; and, second, the type more commonly developing in older patients, those past middle life. The prevention of gastric ulcer could be summarized thus: maintain a calm nervous system in a well conditioned body; the medical treatment; to make a positive diagnosis, begin treatment early, and carry out with painstaking attention the details for a long time, general rest, in some cases discreet feeding, in others periodical starvation, depending for support upon frequent small enemata of normal salt solution. For the control of hemorrhage, in addition to rest, local treatment through the stomach tube, using ice water, adrenalin solution and gelatin water. In irritating hyperacidity one should use local general sedatives and antacids. To relieve hypertension and spasm of the stomach, in addition to suitable drugs, the external applications of Von Leube. Treatment should be continued long after apparent cure and the stool studied for occult blood. The indications for surgery were for the relief of results of gastric ulcer rather than for the cure of the disease itself.

THE CONTRIBUTION OF SURGERY TO A BETTER UNDERSTANDING OF GASTRIC AND DUODENAL ULCER.

DR. WM. J. MAYO, Rochester, Minn., divided ulcers of the stomach or duodenum into two classes, — indurated ulcer involves all of the coats of the stomach or intestine and its existence may be demonstrated from the exterior of the organ. All the notable contributions of surgery to our knowledge of ulcer concerned this group. Surgical investigation had shown, first, that ulcer of the duodenum in the upper inch and a half is as common as ulcer in the whole of the stomach. Second, that the majority of ulcers called pyloric have their origin in the duodenum. Third, that the male sex is more frequently afflicted with ulcer of the stomach and duodenum (62 males to 38 females) by reason of the fact that 77% of duodenal ulcers are in the male, true gastric ulcer being about even in the two sexes, 52 males to 48 females. Fourth, that cancer frequently has its origin in ulcers. In 54% of 69 cases of cancer of the stomach submitted to resection by Dr. Chas. H. Mayo and the writer in 1905–6, cancer could be demonstrated to have had its origin in ulcer. Non-indurated mucous ulcer, also described as clinical or medical ulcer, gives no evidence from the exterior of the stomach or duodenum of its existence, and unless the interior be successfully explored, the diagnosis remains in doubt. Nearly all the failures in the surgery of ulcers concerned this group. The existence of acute non-indurated mucous ulcer was shown by operations for acute perforations, hemorrhage and post-mortem investigations of deaths from these causes. Chronic non-indurated mucous ulcer was certainly very rare. The large majority of cases so diagnosed were in reality non-surgical conditions, such as pyloric spasm, atonic dilatation, gastroptosis and the gastric neuroses. If a diagnosticated chronic non-indurated mucous ulcer (clinical ulcer) cannot be demonstrated at the operating table, it probably does not exist and operation should not be done on an improved hypothesis unless complications, such as hemorrhage, perforation or obstruction, coexist.

DR. JOHN C. MUNRO, Boston, had made an analysis of 150 cases. Of these 87 showed gross ulcer of the stomach or duodenum; 16 belonged to the class of so-called medical ulcer, where no gross ulcer could be found at operation; 25 showed well marked adhesions, without evidence of ulcer; 15 were the so-called neuroses and 9 classed as ptosis, spasm of the pylorus, etc. As to the question of immediate gastro-enterostomy in perforation he believed the anastomosis shortened convalescence and tended to obviate the necessity of

secondary operations. The simpler the technic and the nearer we followed anatomical lines the better the result. The different methods of operation were gone over in detail. Excision of the ulcer area, which is also the cancer area, he considered the ideal operation after middle life. The decision upon the type of operation depended upon the individual case and the experience of the operator. The simplicity and cleanliness of the clamp and suture operation spoke highly in its favor and he thought was to be preferred to any other. When relief is obtained in these cases it excels that in almost any other class of diseases, besides relieving the chances of engrafted malignancy.

Dr. A. Jacobi, New York, in discussing the subject, said that ulcers of the stomach, both acute and chronic, are frequent at every age. There were those whose experience permitted them to say that from 2% to 5% of the population suffer from it. Brinton collected 226 cases, of whom two were under ten years of age; 18, from 10 to 20; 43, from 20 to 30; 38, from 30 to 40; 38, from 50 to 60; and 32, from 60 to 70. Similar results had been obtained by Cruveilhier and by Rokitansky. A late case had been published by Immerwohl, the patient being four years old, with a chronic ulcer and nephritis, dying of uremia. Ulcer of the stomach, in its most dangerous form, was not infrequent in the infant. Between the seventh and thirteenth year was not at all rare. Most ulcers were found on the posterior wall near or in the small curvature; the next locality of predilection being the neighborhood of the pylorus, while some were found in the cardia or in the fundus, in the anterior wall and the large curvature. The size might be no larger than the head of a pin, detected with difficulty at autopsy, while they might be the size of a hand. As to the occurrence of hemorrhage his own observation, extending over a period of fifty-four years of private and hospital practice, coincided with that of Leube, that it occurred in less than 1%. His experience as to perforations also coincided with that of Leube that they occurred in about 1% to 2%. As to the mortality reports the vast differences ranging from 2.4% to 50% proved for the thousandth time that statistics may be the most deceptive and most irrational method of dealing with any clinical question. The experience of the general practitioner in a large practice among the poor or among the rich, among men or among women, the general physician with a family practice only or an office practice pre-eminently, the consultant who is called in to see bad cases only, the stomach specialist, the surgeon in general practice, the hospital physician in whose wards bad cases only take refuge, the hospital surgeon who never sees anything but hemorrhages and perforations, give a variety of observers and a variety of cases. Exclusive hospital physicians and surgeons have little experience with the average ulcer of the stomach; theirs being only an experience with bad or fatal cases. Their statistics referred to hemorrhages and perforations, not to chronic ulcer of the stomach. The main symptoms of gastric ulcer were given as pain, hyperacidity and sometimes hemorrhage. The presence of ulcer required constant alkalinization of the stomach, the administration of an alkali at long intervals being insufficient. He gave an alkali before every meal and at intervals of two hours for months and preferred those which contained no carbonic acid, which inflated the stomach. The best was magnesia, magnesium oxide, three to four grams a day. Bismuth subcarbonate, not subnitrate on account of its gritty condition, might be safely added. The speaker felt positive from what he knew of the frequency of gastric ulcer in general practice and of the long time it takes negligent or indigent patients to nurse their illness up into the stage of hemorrhage or perforation that it was often cured and prevented from the necessity of getting into the medical or surgical hospital ward. Conservative surgeons admitted that 75% of gastric ulcers were cured by internal treatment. After the operator had performed his duty the case became again that of the practitioner and there might be an organ of doubtful utility, for the creation of a funnel was not the restoration of a normal stomach.

Dr. E. G. Janeway, New York, believed that the medical men and the surgeons were now pretty well agreed on this subject; certainly they were in entire accord as to perforation; where there was perforation operation was indicated and indicated at once if the best results were to be expected. The same was true of stenoses and obstruction of the pylorus with cicatrices. He did not feel that lavage was advisable in these cases and referred to two instances where death had been produced by its employment. He had the same objection to the use of subnitrate of bismuth that Dr. Jacobi had mentioned; it could be seen under the microscope to consist of crystalline flakes with sharp edges, and why it had remained so long a favorite remedy he could not understand; he had had one case in which the sharp flakes were found in the passages. He preferred the subcarbonate or subgallate. He did not advocate the use of subnitrate of silver in these cases as there was no certainty of touching the ulcer with it. He advocated Trousseau's method of requiring the treatment to extend over a period of two years. The patient should be put on his guard and told that he has a chronic disease for which the treatment must be kept up for a long time.

At the conclusion of the meeting the secretary, Dr. Wm. H. Carmalt, was presented with a silver loving cup by the presidents of the congress and presidents of its constituent associations, in appreciation of his faithful and untiring efforts for the success of the organization.

Book Reviews.

A Textbook of Elementary Analytical Chemistry, Qualitative and Volumetric. By John H. Long, M.S., Sc.D., Professor of Chemistry and Director of the Chemical Laboratories in the Northwestern University Medical School. Third edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co. 1906.

Several important changes have been made in this third edition. A chapter has been added on generalities, on reactions in solution, and the qualitative processes have been somewhat simplified. Under the head of volumetric analysis several paragraphs have been added on the use of indicators, and a few new processes are described, notably, methods for the titration of formaldehyde and borates.

The work is a valuable one for the student of analytical chemistry.

Dr. Jean Charcot has presented to the Salpêtrière in Paris the entire library of his father, which is considered one of the foremost collections of neurological literature in the world. Dr. Charcot has also presented to the same institution the furniture of his father's study.

THE BOSTON

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THE HOUSING PROBLEM IN WASHINGTON.

THE casual visitor to the national Capital must always be impressed with the striking contrasts between wealth and poverty, even in the best quarters of the city. This one expects in a city of very rapid growth, such, for example, as New York, but it occasions more surprise in a city of moderate size, and particularly in one which is the center of the political life of the country. An explanation of this condition of affairs in Washington is no doubt to be found in the large negro population, which at the time of the Civil War poured into the District of Columbia to the estimated number of between thirty and forty thousand. These negroes were naturally destitute, shiftless and, in great measure, incapable of caring for themselves. The result was the erection of innumerable hovels, many of them within the city limits, from materials obtained from various sources and often, at that time, from abandoned army camps and hospitals. The natural result of this over-crowding of an ignorant population in unsanitary dwellings was a greatly increased mortality. During the smallpox epidemic of 1871–2 but one case occurred in two hundred and twenty-five whites, whereas the proportion was one in thirty-eight among the negro population. In 1875 the general death-rate was twice as great among the colored as among the white population, a proportion which practically remains to-day, although the death-rate of both white and colored has been very materially reduced.

We have before us an extremely interesting account, by Dr. George M. Kober, of "The History and Development of the Housing Movement in the City of Washington, D. C.," recently published by the Washington Sanitary Improvement Company. The fact that disease is propagated by the unsanitary conditions which necessarily accompany overcrowding is perfectly well recognized, and has been for many years. In 1872 the Washington Board of Health called attention to the fact that houses unfit for occupation were in existence in the city, and a specific ordinance was issued which rendered possible the condemnation of such houses by officers of the Board of Health. As a result of this very salutary movement, many houses were reported as unfit for human habitation, some of which were condemned. For example, in 1875, 699 houses were reported as unfit and 198 condemned. In the following year 424 reported and 371 condemned. In the report of the Board of Health for 1877 the following statement is made:

"No meaner cabins for temporary or permanent shelter can be found than some in which our wretched poor are born and exist and die here at the capital of the United States. And, strange as it may seem, none so mean that they have not an owner mean enough to charge rent for them. Down in the alleys, below grade, with combination of roof of tar, felt, shingles, rags, tin, gravel, boards, and holes; floors damp and broken; walls begrimed by smoke and age; so domiciled are families with all the dignity of tenants having rent to pay."

Unfortunately, in 1880, the good work of house condemnation was stopped, due presumably to political complications, and it required ten years to excite public opinion again to the point of definite action. As Dr. Kober well says:

"This battle against the slums does not concern a few well-meaning citizens alone; it is a question of vital importance to the health, not only of every permanent resident, but to the Chief Magistrate, his cabinet, the foreign ministers, thousands of public officials, the members of the Senate and House of Representatives, and all citizens having business with Congress, besides the countless numbers of visitors who annually pay homage to the city of Washington."

Between 1880 and 1892 practically nothing was done, but in the latter year certain restrictions upon the character of dwellings was made, and in 1894 an organization of public-spirited citizens, known as the Civic Center, vigorously took up the matter. Investigations of alleys and slums, with particular reference to sanitary and sociological conditions, followed, with shocking revelations as to the state of affairs in many parts of the city, and often within a few blocks of the most aristo-

cratic quarters. It was found, as is to be expected, that the wretched hovels and alleys harbored all sorts of vice, immortality and disease-producing conditions. The result has been a strong expression of public opinion, in which the President of the United States has shared, that conditions be improved throughout the city, and the outcome of ten years' work has been the widening of streets, the building of model houses from a sanitary standpoint, for which the rent is small, and in the introduction of various means by which the tenants may be stimulated to take a certain pride in the condition of their dwellings. In the language of General Sternberg, President of the Building Committee, one object of the company which has been formed " is to build sanitary houses for a deserving class of the population which cannot afford to pay the rentals of from ten to sixteen dollars per month which the better class of wage-earners pay for flats of the Washington Sanitary Improvement Company." In other words, it is proposed to build dwellings suited to the means of various classes in the population, which shall not be a discredit to the city and a source of positive danger to its inhabitants.

We commend to all those interested in the broader questions of prophylactic medicine this admirable pamphlet by Dr. Kober. Although what he says applies particularly to the city of Washington, it also has a wide bearing on practically all of our American cities. The success under natural difficulties of the work in Washington should stimulate other communities, even though the conditions may not be so bad, to eradicate centers of crime and disease which are everywhere to be found where people of the poorer class collect in large numbers.

THE ATTITUDE OF TEXAS TOWARD TUBERCULOSIS.

It is reported, presumably on good authority, that within a short time persons suffering from advanced tuberculosis are to be debarred from entrance to the State of Texas. The state health officer, it is announced, will issue a proclamation and institute a quarantine against persons afflicted with tuberculosis, placing the disease in essentially the same category as yellow fever and smallpox.

A despatch from Washington regarding the Texas situation indicates that Federal officials are considerably agitated; that tuberculosis in their opinion is not a quarantinable disease under maritime or interstate immigration laws although aliens may be debarred from the country when suffering from tuberculosis, under the action of the new immigration law. It is furthermore urged that such a quarantine as Texas proposes will be difficult to establish and sustain on the guaranteed right of every citizen of the United States to pass freely from one state to another. Could such a quarantine be maintained, it is evident that the cost would be large and the possibilities of injustice numerous.

We have on previous occasions taken the opportunity to express disapproval of such attempted exclusion of tuberculous persons from certain states or regions. To any student of the tuberculosis problem it has become apparent that the disease is not communicable in the ordinary sense, as understood by the laity, and that over-alarm regarding the spread of the disease is wholly deleterious to the public *morale*, and ultimately a detriment to the cause. Such attempted quarantines in other states in the West have failed, both on account of the protest of intelligent and broad-minded persons in and out of the medical profession and the natural difficulty of enforcing a quarantine against a disease which does not forthwith disclose its character. The excellent progress which is being made toward eradicating tuberculosis is certainly not to be furthered by any such drastic legislation as Texas apparently proposes.

THE BOSTON MILK FUND.

An appeal has been sent out by the trustees of the milk fund to the citizens of Boston and vicinity in behalf of sick babies during the summer months. The object of this charity is to provide proper milk for babies during the heated term when infant mortality is at its height. The work has been in progress for a number of years and has amply justified its existence through the undoubted saving of many lives. The babies who are recipients of the charity are kept under the care of physicians in charge of different dispensaries and it does not extend to private patients. Naturally the success of such a charity depends upon the amount of contributions provided for its support. During the last seven years upwards of $27,000 have been received in subscriptions and nearly $4,000 from parents grateful for the benefit which their children have received. It is the hope of the management that the fund will grow to such an extent that it may ultimately be continued throughout the year for the benefit of the most needy and delicate infants, although

naturally the hot months will continue to make the chief demands upon it.

This charity is certainly an extremely worthy one, which should appeal to all who realize the extreme suffering of small children during the hot months in the crowded quarters of a great city. For a number of years a plan of this sort has been in active operation in New York, and other cities and towns in increasing numbers have adopted it. We note, for example, in this issue the fact that the city of Cambridge has again put in operation a plan begun last year for distributing milk at cost price.

MEDICAL NOTES.

INSTITUTE OF PATHOLOGY ON BLACKWELL'S ISLAND, NEW YORK. — It is announced that Mrs. Russell Sage has endowed an institute of pathology to be carried on in connection with the City Hospital and City Home on Blackwell's Island, in the amount of $300,000.

AMERICAN ORTHOPEDIC ASSOCIATION. — At the meeting of the American Orthopedic Association held in Washington on May 7, 8 and 9, the following officers were elected for the ensuing year: President, Dr. Henry Ling Taylor, of New York; Vice-Presidents, Dr. Ansel G. Cook, of Hartford, and Dr. A. R. Shands, of Washington; Treasurer, Dr. Gwilym G. Davis, of Philadelphia; Secretary, Dr. Robert B. Osgood, of Boston; Executive Committee, Dr. Henry Ling Taylor, of New York; Dr. John Ridlon, of Chicago; Dr. Wisner R. Townsend, of New York; Dr. Joel E. Goldthwait, of Boston; Dr. Robert B. Osgood, of Boston.

The meeting was very largely attended, there being over forty members and over forty visitors present.

NATIONAL CONFERENCE OF CHARITIES AND CORRECTION. — Among the number of interesting papers read at the National Conference of Charities and Correction, held at Minneapolis last week, Dr. George S. Adams, Superintendent of the Westboro, Mass., Insane Hospital, spoke on the subject, "Voluntary Patients in an Insane Hospital," and pointed out the gratifying fact that the number of such voluntary cases was increasing. Dr. Owen Copp, of the Massachusetts State Board of Insanity, urged a better classification of the insane for purposes of treatment by means of proper location of institutions, rational grouping of cases and by distinctions between the hospital, the asylum and the colony.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 26, 1907, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria, 30, scarlatina 29, typhoid fever 8, measles 103, tuberculosis 43, smallpox 0.

The death-rate of the reported deaths for the week ending June 26, 1907, was 19.48.

BOSTON MORTALITY STATISTICS. — The total number of deaths reported to the Board of Health for the week ending Saturday, June 22, 1907, was 204, against 158 the corresponding week of last year, showing an increase of 46 deaths and making the death-rate for the week 17.67. Of this number 127 were males and 77 were females; 202 were white and 2 colored; 131 were born in the United States, 71 in foreign countries and 2 unknown; 35 were of American parentage, 141 of foreign parentage and 28 unknown. The number of cases and deaths from infectious diseases reported this week is as follows: Diphtheria, 39 cases and 2 deaths; scarlatina, 38 cases and 3 deaths; typhoid fever, 7 cases and 0 deaths; measles, 99 cases and 3 deaths; tuberculosis, 44 cases and 23 deaths; smallpox, 0 cases and 0 deaths. The deaths from pneumonia were 26, whooping cough 0, heart disease 19, bronchitis 4 and marasmus 2. There were 17 deaths from violent causes. The number of children who died under one year was 40; the number under five years, 64. The number of persons who died over sixty years of age was 42. The deaths in public institutions were 63.

There were 6 cases and 11 deaths reported from cerebrospinal meningitis during the week.

A LOVING CUP FOR DR. NATHAN P. THAYER. — Dr. Nathan P. Thayer, whose resignation as resident physician at the Long Island Hospital, Boston, takes effect July 1, has been given a loving cup by the house officers of the institution out of respect for the excellent service he has rendered and as a mark of regret at his resignation.

HARVARD DENTAL ALUMNI ASSOCIATION. — A meeting of the Harvard Dental Alumni Association was held in Boston, June 24, with an attendance of about one hundred and fifty, many coming from a distance. Clinics and demonstrations were held at the Dental School during the morning, and in the evening the thirty-sixth annual dinner was held at Young's Hotel, the guest of honor being President G. Stanley Hall,

of Clark University. Dr. Harvey W. Hardy was elected president for the ensuing year.

Harvard Medical Alumni Association.— The annual meeting of the Harvard Medical Alumni Association was held on Tuesday, June 25, at the Harvard Medical School, with the President, Dr. Alfred Worcester, in the chair. In spite of the heat nearly a hundred members were present and listened with much interest to a valuable paper upon "Medical Teaching at Harvard and the Opportunity it offers the Young Graduate for Medical Training," by Henry A. Christian, M.D.

The committee in charge of the Alumni Fund reported that $2,500 had been turned over to the school, of which sum $1,500 was for use next year and $1,000 was to be added to the Permanent Medical Alumni Fund. Last year $1,200 was given the school together with $2,400 destined to be the nucleus of the Permanent Alumni Fund, which was the product of an earlier subscription and had been held by the Association for some years.

The following gentlemen were elected as Councilors for the ensuing four years: Drs. J. F. A. Adams, J. Collins Warren, E. G. Cutler.

Milk for Infants. — Cambridge, Mass., has just opened stations for the distribution of modified milk to infants at cost. Last summer this work was carried on under the auspices of the Cambridge School for Nurses and proved so beneficent that it was decided to continue the plan this summer and to begin the distribution somewhat earlier. The milk after being modified at the School for Nurses is distributed to the different stations and sold at one to two cents a bottle to those who are in need.

NEW YORK.

Milk Depots. — The Nathan Strauss Pasteuring milk depots began their fifteenth summer season on June 17 with the opening of eleven booths in the public parks and on the recreation piers, making in all seventeen milk stations. Of these, six are maintained throughout the year in the tenement districts. The laboratory where the milk is received and Pasteurized is in charge of Dr. A. R. Green. The milk for infants is dispensed at the various stations in nursing bottles, either in full strength or in modifications adapted to different ages and conditions in the children supplied, and physicians are in attendance at the booths to advise mothers as to the feeding and other care of their babies. This charity has now been maintained for fourteen years by Mr. Strauss, who, in addition to selling the milk at a loss, distributes gratis many thousand bottles each year to the poor.

Seaside Hospital of St. John's Guild. — The Seaside Hospital of St. John's Guild, at New Dorp, Staten Island, has for the first time been kept open all winter, and on June 19 the summer work of the guild was inaugurated with an excursion to New Dorp on the Floating Hospital, *Helen C. Juillard.* To this were invited a large number of the patrons and friends of St. John's Guild, who inspected the admirable appointments of both the floating and seaside hospitals.

Pasteurized Milk in Jersey City. — Mayor Fagan, of Jersey City, announces that he has made arrangements for the establishment of stations in various parts of the city for the dispensing of Pasteurized milk, similar to the Nathan Strauss depots in New York. The first of these will be opened at the City Hall, and is expected to be in operation by July 1. As in New York, those who cannot afford to pay the low rate charged for the milk will be supplied free.

Clubs for Employees at Bellevue Hospital. — Dr. John Brannan, president of the board of trustees of Bellevue and Allied Hospitals, has had organized at Bellevue two clubs for the male and female employees of the hospital. Both the male and female nurses have long had their own associations in the well-equipped homes connected with the institution, but the other employees have hitherto had to seek their recreation outside. Too often this was done by the men in drinking saloons, and the plan now adopted has already resulted in a gratifying improvement in discipline among them. For these clubs comfortable quarters have been provided, with pianos and an ample supply of newspapers and magazines, and no membership fee is charged.

New Catskill Water System. — On June 20, Mayor McClellan turned the first spadeful of earth on the new Catskill water system of the city of New York. The place selected for this was in the valley of Indian Brook, about three miles back of Cold Spring, on the east bank of the Hudson River, and the simple ceremonies in connection with the inauguration of this great work, the estimated cost of which is $162,000,000, were held in the presence of the board of water commissioners and a number of other city officials

and invited guests, who made the trip to Cold Spring on the steamboat *Albany*. It is at Cold Spring, where the Hudson entering the gate of the Highlands becomes reduced to the width of 2,800 feet, that the aqueduct conveying the water from the Esopus, Catskill and Schoharie watersheds, stored in the enormous Ashokan reservoir, is to pass, in a tunnel about a thousand feet below the surface, under the bed of the river. In the course of his remarks on this occasion the mayor stated that it had been necessary to do three things before a new water system, urgently needed in the near future, could be actually undertaken: first, to provide an additional borrowing capacity to meet the expenses of the work; second, to enact legislation to make the powers of the local authorities certain; and, third and most important, to arouse public opinion so that the two first obstacles should be removed. He concluded with these earnest words: "As the years merge into the decades and the decades into the centuries, when time has thrown its kindly veil over the bickerings and the differences and the quarrels which seem so much to us and are, after all, so futile and so petty, when friend and enemy, traducer and traduced, have passed away, when our very names shall have been forgotten, when this great work, conceived in honesty, begun in honesty, and, God willing, completed in honesty, shall be administering to the health and happiness of millions yet to come, — then God grant that those who shall see it may say: 'It does not matter how they were called who did this thing, or who they were, or what they were; it is enough that they did their duty.'"

Current Literature.

ANNALS OF SURGERY.

MAY, 1907.

1. *KEEN, W. W. *Severe Burn of Top of Head at Seven Months of Age, followed by Necrosis of Entire Osseous Cap of Cranium.*
2. MARTIN, F. *The Surgical Treatment of Trifacial Neuralgia.*
3. *RUGH, J. T. *Hemophilic Knee-Joint Operation; Recovery under the Use of Thyroid Extract.*
4. *HARTE, R. H. *Stab Wounds of the Heart.*
5. GORDON, G. S. *Hernia of the Stomach through the Diaphragm into the Thorax.*
6. MCCONNELL, G. *Carcinoma of the Cardiac End of the Stomach.*
7. *BREWER, G. E. *A Critical Review of a Recent Series of Operations upon the Stomach.*
8. *MARTIN, W. *The Lesions Associated with Gunshot Wounds of the Stomach.*
9. *BERG, A. A. *Duodenal Fistula; Its Treatment by Gastrojejunostomy and Pyloric Occlusion.*
10. SOLZER, M. *Iliocecal Intussusception due to Myoadenoma of the Ileum.*
11. DAVIS, B. B. *The Surgical Treatment of Splanchnoptosis.*

1. Keen reports the case of a boy fourteen years old, who at the age of seven months sustained a very severe burn of the top of the head. Six months later the whole calvarium sloughed off, including a large portion of both frontal bones, the whole of both parietal bones, and a part of the squamous portion of the right temporal bone. The resulting scar remained alternately healed and open. Soon after the accident the boy had convulsions, which later became distinct epileptic attacks, and these have increased both in severity and frequency since. Until about eleven years old the boy was at school and showed an excellent memory. At this period, however, the epileptic attacks became more frequent, and he became stupid. Keen did a complete subcutaneous linear craniotomy so as to separate the entire top of the skull from the lower portion in the hope of thus relieving the pressure from scar contracture. The epileptic attacks became somewhat lessened in frequency and the boy less dull, though during the two years following operation the improvement had not been as great as had been hoped for.

3. An interesting case of hemophilic knee-joint is reported by Rugh, occurring in a waiter of twenty-two years, whose family history was negative so far as bleeding was concerned. Before the involvement of the knee there had been two hemorrhages, each of about three weeks' duration, which followed biting of the tongue. Following a fall, the knee-joint began to cause pain. This would recur on any slight provocation, such as a slight twist or forced flexion. For ten years this condition continued intermittently till the function of the joint had become so impaired that he had to give up work. On opening the joint the synovia was found of a chocolate brown color. The hypertrophied portions were excised and the joint drained. There was no excessive hemorrhage during the operation, but two days later on removal of the drainage, bleeding set in, filling the joint and most difficult to control. Gelatin and adrenalin by mouth failed to stop the constant ooze. Ten days after operation, following the administration of 5-gr. doses of thyroid extract three times a day, the condition gradually improved and in a week the bleeding had entirely ceased. Prompt recovery followed.

4. Harte reports a case of stab wound of the heart in which a wound in the left auricle one-half inch in length was successfully sutured. The left pleural cavity had been opened, however, and death occurred about three weeks later. Autopsy showed a badly drained empyema with collapsed lung. There were extensive pericardial adhesions with no evidence whatever of the stab wound. The endocardium and valves were healthy. In operating on these cases Harte advises the simple supraleural method, taking extreme care not to enter the pleural cavity. Fine chromicized catgut on fine curved needles should be used, and the pericardium closed without drainage. Should the pleural cavity be found open, immediate provision for its drainage should be made if possible.

7. Brewer considers the indications for treatment in benign lesions of the stomach to be: (1) Intelligent medical treatment in all primary cases of simple round ulcer. If unrelieved after six weeks of such treatment operation should be advised. (2) Operation in all cases of indurated chronic ulcer and in all cases of recurrent symptoms after a primary cure. (3) Operation in all cases of pyloric stenosis excepting those due to gummatous infiltration. Seventeen cases are reported in which operation revealed a definite anatomical lesion in 12. Of these cases, 11 made an immediate recovery, while 1 died on the sixth day after operation, from pneumonia. The remaining 5 cases showed no anatomical lesion at operation. One was a case of locomotor ataxia with gastric crises, 1 a case of hysterical pseudo-tetany, while the remaining 3 were examples of gastric neuroses. Though in 2 of these cases considerable improvement in symptoms followed the operation, there was no reason to ascribe this to the operative procedure. Therefore operative intervention should be limited to cases in which the evidence of a definite anatomical lesion is wellnigh conclusive.

8. Following a careful analysis of twenty-five cases of

gunshot wounds of the stomach, Martin concludes as follows: 1. Perforations of the stomach alone should show a low mortality. 2. Uncomplicated gunshot wounds of the stomach are very uncommon. 3. The associated injuries are usually of graver significance than the gastric injury and should therefore be considered in speaking of the mortality of wounds of this character. 4. The mortality of such wounds has been much reduced, being now about 25%.

9. Berg advises closure of the pylorus in addition to gastrojejunostomy in all instances of duodenal fistula. This is best done by a band of tape held by silk ligatures. [W. C. Q.]

Surgery, Gynecology and Obstetrics.

May, 1907.

1. Barrett, C. W. *Endothelioma of the Ovary, with Report of a Case of Hemangio-Endothelioma Perivascularis.*
2. *Cullen, B. *A Series of Liver Cases in which it was Necessary to Remove a Segment of the Liver or to Suture Torn Areas.*
3. Dührssen. *Treatment of Extensive Cystocele and Uterine Prolapse.*
4. Kapsammer, G. *Newer Methods in the Diagnosis of Kidney Diseases.*
5. Meyer, A. W. *The Lymphatic Glands in Pregnancy.*
6. *Egdahl, A. *Symptomatology and Diagnosis of Acute Pancreatitis.*
7. *Holden, G. R. *Dysmenorrhea as a Symptom of Abnormal Pelvic Conditions.*
8. *Newell, F. S. *Valvular Disease of the Heart Complicating Pregnancy and Labor.*
9. Marshall, V. F., and Quick, E. *Stricture of the Urethra in Male Children.*
10. Hinchey, F. *Perineal Lacerations.*
11. Seelig, M. G. *Cervical Fistula following Suppuration in a Patent Thyroglossal Duct.*
12. *Sandberg, J. *Bier Method of Anesthesia.*
13. Bird, F. D. *Syphilis as a Cause of Stomach Disease.*

2. Cullen reports a series of five cases in which it was necessary to remove a segment of the liver or to suture torn areas. His experience has been that with the liver-needle devised by Kousnietzoff, or with the modified needle of Cullen himself, all technical difficulties arising from hemorrhage are overcome. Instead of piercing the vessels, this needle, being quite blunt, pushes them aside. A Hagedorn needle used eye-end first can be used for this purpose with satisfactory results.

6. Basing his report on 107 cases of acute pancreatitis collected from the literature, to which he adds one new case, Egdahl finds the average symptoms of this disease to be the following: 1. A past history of cholecystitis or gastro-intestinal disorder, often of alcoholic origin. 2. Occasionally a past history of typhoid fever, gastric ulcer, or epigastric injury shortly before the attack and giving rise to it. 3. An onset characterized by sudden abdominal pain of extreme severity, greatest in the majority of cases in the epigastrium. 4. Almost immediate nausea and vomiting and early evidence of collapse. 5. A normal or only slightly elevated temperature. 6. Early distention of the abdomen, but no palpable tumor until one or two days after the onset. 7. Icterus, pruritus, cyanosis and hiccough may appear. 8. Glycosuria or lipuria, fat, undigested nuclei and muscle fibers in the stools offer important evidence of pancreatic involvement.

7. Holden has analyzed one thousand consecutive cases at the clinic of Kelly in Baltimore. His conclusions are as follows: 1. Dysmenorrhea is present in 47% of all gynecological hospital patients. 2. In about 23% of the entire number it is due to abnormal conditions of the pelvic organs. 3. In 22% of the entire number it is present in conjunction with such conditions, but is not caused by them. 4. The most frequent causes of dysmenorrhea are (*a*) retrodisplacements of the uterus (41%), (*b*) pelvic inflammation (37%), (*c*) myomata (11%).

8. Newell is of the opinion that any organic heart lesion, even if perfectly compensated under normal conditions of life, should arouse apprehension and call for constant watchfulness if pregnancy supervenes. Pregnancy occurring when the heart lesion is imperfectly compensated is sufficient indication for immediate emptying of the uterus; for a heart which is not able to care for its ordinary work has no chance of supporting the added burden of pregnancy. When a previously well-compensated heart fails under the extra work thrown on it by pregnancy, an attempt may be made to restore compensation by rest and appropriate treatment, but, unless these measures are promptly successful, the heart must be relieved by the removal of the extra burden.

12. Sandberg reports five cases of respiratory paralysis, with death in three instances following spinal anesthesia with stovain. [W. C. Q.]

The Lancet.

May 25, 1907.

1. *Osler, W. *Abdominal Tumours Associated with Disease of the Testicle.*
2. *Parsons, J. H. *Lesions of the Trigeminal Nerve.*
3. *Rigby, H. M., and Howard, R. J. *Torsion of the Testis.*
4. Hold, P. T. *On Hypopharyngoscopy.*
5. Lees, D. B., and Cope, V. Z. *Two Cases of Pulmonary Regurgitation.*
6. Bonnet, St. P. *Acute and Chronic Appendicular Pain.*
7. Garrett, J. H. *Sanitary Authorities and Sanitary Officers.*

1. Osler speaks on abdominal tumors associated with or following disease of the testicle. There may be two varieties, either a tumor resulting from an undescended testicle free in the abdomen, usually sarcomatous, or else secondary to disease of the testicle in the glands which drain that organ. The latter tumors are high up in the abdomen, as these glands lie about on the level of the renal artery. The inguinal glands are not usually involved unless the scrotum is attacked. He gives the details of five interesting cases.

2. Parsons describes two sets of eye disturbances resulting from lesions of the trigeminal nerve: (1) herpetic and allied conditions of the cornea, and (2) neuroparalytic keratitis. The first is supposed to be due to changes in the Gasserian ganglion. It is allied to herpes zoster, but does not follow the nerve supply so closely as in that condition. The second condition is apt to follow extirpation of the Gasserian ganglion.

3. Rigby and Howard base their paper on nine cases of torsion of the testis. It may occur at any age, most often on the right, and often in the undescended or incompletely descended testicle. The cause is a congenital abnormality, a voluminous condition of the tunica vaginalis. The exciting cause is not known. Symptoms are pain in the groin, vomiting and sometimes fever and difficulty in micturition. If undescended, there is an exquisitely sensitive swelling above Poupart's ligament, otherwise the swelling involves the entire scrotum. It is difficult to distinguish the condition from strangulated hernia. The result is usually atrophy of the testicle, with sometimes gangrene and sloughing. No fatal case has been reported with or without operation. The treatment is to remove the twisted testis if undescended, and if fully descended, to untwist it and stitch it in position. [J. B. H.]

June 1, 1907.

1. Knaggs, R. L. *Puncture Fractures of the Base of the Skull.*
2. Stevens, B. C. *Surgical After-treatment.*
3. McCay, D. *Physiological and Pathological Observations on Wright's Method of Testing the Blood and Urine, with Special Reference to the Concentration of the Serum and Urine and the Excretory Quotient of Natives of Bengal.*
4. MacGillivray, C. W. *A Case of Multilocular Ovarian Cyst Successfully Removed from an Infant Aged Eleven Months.*
5. Lake, R. *A Further Note on Rinné's Test.*
6. Milward, F. V. *Congenital Piles. Notes on three Cases in which a Pile-like Condition was Noticed from Birth.*
7. Arnold, E. G. E. *A Case of Tubal Pregnancy Associated with Ovarian Cyst.*
8. Morton, E. R. *On the Value of High-Frequency Spark as a Local Application.*

BRITISH MEDICAL JOURNAL.
MAY 25, 1907.

1. *BLACKER, G. F. *Heart Disease in Relation to Pregnancy and Labor.*
2. *CAMPBELL, M. *The Effects of Diet on the Development and Structure of the Uterus.*
3. PRATT, E. *Case of Sudden Death at the Climacteric.*
4. GODSON, T. E. *Note on the Use of the Blunt Hook.*
5. STARK, J. N. *A Case of Extra-Uterine Pregnancy in which Unusually Early Rupture of the Gravid Tube Occurred.*
6. WALKER, E. W. A. *On the Micro-organism Isolated from Acute Rheumatism and its Relation to Other Members of the Streptococcus Group.*
7. ODGERS, N. B. *A Case of Retropharyngeal Fibroma.*
8. BARWELL, H. *Epithelioma of the Larynx in a Young Man.*

1. Blacker does not consider it proved that the heart undergoes hypertrophy during pregnancy. In some cases there is more or less hypertrophy, in others it is dilatation, and more often no change occurs, except in position. The blood pressure rises during the second half of pregnancy, as there is undoubtedly more work put on the heart and blood vessels. In valvular disease of the heart the dangers from this overwork are increased, although death from cardiac failure during labor is very uncommon; cardiac failure immediately or shortly after labor is not so rare. The general tendency is to greatly overestimate the dangers of valvular disease complicating pregnancy. Books give the mortality as high as 40% or 50%. It is probably far less than this. If the heart is well compensated, the danger is very slight indeed. As regards marrying, the writer believes that with a well-compensated lesion there is no reason against it.

2. Campbell concludes from his observations on the effect of diet on the development of the uterus that a non-physiological diet, *i. e.*, exclusively meat or rice, etc., causes a deterioration in the mucous membrane of the uterus; those animals fed on ox-flesh diet alone showed a most marked interference with the normal development of the uterus, associated with sterility. [J. B. H.]

JUNE 1, 1907.

1. *OWEN, E. *Remarks on Hernia, Particularly in Children.*
2. *MUMMORY, P. L. *An Operation for the Removal of the Entire Rectum and Neighboring Lymphatic Area for Carcinoma.*
3. *ROLLESTON, H. D., and HIGGS, F. W. *Squamous-celled Carcinoma of the Stomach and Oesophagus Imitating Tuberculous Ulceration of the Intestine.*
4. RAMSEY, R. *Two Cases of Multiple Intestinal Obstruction.*
5. LEIPERT, R. T. *Two New Genera of Hematodes Occasionally Parasitic in Man.*
6. MACLEOD, J. M. H. *The X-ray Treatment of Ringworm of the Scalp; Singular Coincidence of Measles with the Deffuvium of the Hair.*
7. *WILKINSON, W. C. *A Plea for the Use of Tuberculin within and without Sanitarium.*

1. Owen, in speaking of hernia in children, believes that much can be done by postural treatment and diet before resorting to the knife. He advises keeping the child in an inverted position as much as possible, with the feet high in the air, and to sleep in a marked Trendelenburg posture. This he says does not harm or annoy the infant in any way. Intra-abdominal pressure must be relieved so that there be no straining at stool; for this careful attention to the diet and bowels is necessary. If after a careful trial of non-surgical treatment the hernia still comes down, a radical operation should be done. If the testicle is undescended on the side of the hernia, a not infrequent complication, he advises removing the testicle rather than trying to anchor it in the scrotum.

2. Mummory gives the details of his operation for complete removal of the rectum, with numerous illustrations. He does a preliminary colostomy in every case. The preparation of the patient and the after-treatment are of almost equal importance to the operation. He claims that by this operation the entire rectum and growth with the lymphatics are removed; that aseptic operating is possible; that the normal opening of the bowel is restored in almost all cases; that it permits of the removal of more extensive growths than either the perineal or Kraske method, and there is no mutilation of the pelvis such as is a necessary accompaniment of the latter operation.

3. Rolleston and Higgs describe a case of squamous-cell carcinomatous ulcer of the stomach associated with repeated intestinal hemorrhages, but without hematemesis, which, in conjunction with the discovery of acid-fast bacilli in the material thought at the time to be sputum, gave rise to the diagnosis of tubercular ulceration of the intestine.

7. Wilkinson makes a strong appeal for the use of tuberculin in diagnosis and in treatment. The early diagnosis is the key to successful treatment; the signs of early tuberculosis may be the same as those of healed tuberculosis; a properly given tuberculin test alone will tell the difference. If a patient reacts to such a test he is tuberculous and should be treated as such; if not, no matter what his signs, it is not tuberculosis that is causing the trouble. This test can be of tremendous importance in keeping out of the sanatoria those cases, non-tuberculous, with signs in the lungs resembling tuberculosis. In treatment, he thinks it of great value. The sanatorium treatment alone, without tuberculin, cannot arrest more than 30% of early cases; with tuberculin it can do far more good. He firmly agrees with Koch, Moeller and others that tuberculosis of the first stage can be cured by tuberculin alone, and that it should be used in conjunction with every other form of treatment. The paper is a most int[illegible] would [illegible] or [illegible]ntinued [illegible]me so [illegible] the [illegible]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT,
APRIL 30, 1907.

1. *SCHADE, H. *The Mode of Action of the Priessnitz Compress.*
2. *BITTORF, A. *Further Researches on the Blood Pressure and Cardiac Hypertrophy in Atheroma of the Aorta.*
3. HOESSLIN, H. *The Excretion of Agglutinins in the Urine of Patients with Typhoid Fever.*
4. *GERKEN, A. T. *A Comparative Study of the Diazo and Widal Reactions and Bacteriemia in Typhoid Fever.*
5. *STERN, A. *The Examination of the Heart in the Trendelenberg Position.*
6. JONES, L. *The Nature of the Epithelial Proliferation following Injections of Olive Oil colored with Scharlach R.*
7. *KOPPIS, M. *A Case of Cancer of the Lung with Marked Eosinophilia.*
8. KROPH, V. *Dermoid Cyst with Intestinal Adhesion Due to the Pressure of a Tooth.*
9. HOCHNE, O. *A Simplification of Bylicki's Pelvimeter.*
10. KILIANI. *On Digitoxin and Digalen.*
11. POSTERNAK, S. *Remarks on Marchot's New Method of Administering Phosphorus to Children.*

1. Schade attempts to explain the action of hot and cold ("Priessnitz") compresses on the basis of differences in the osmotic pressure. The latter has been shown to be much greater in the center of an inflammatory process (*i. e.*, furuncle) than at the periphery, where it is normal. In the region of edema between the two the pressure is intermediate. The compress produces active hyperemia and thereby lowers the osmotic pressure in the intermediate zone, and thus favors the removal of toxic products and a return to the normal osmotic pressure. By this means the pain also is relieved, for it is largely due to increased pressure.

2. Bittorf finds constantly in atheroma of the aorta an increased systolic blood pressure. He attempts to exclude cases of chronic nephritis, but the very high pressure present in 25% of his material suggests that he may not always have been successful in this regard. The absence of autopsies prevents his work from being conclusive, and the question must be regarded as still *sub judice*.

4. The fact that in typhoid fever the presence of bacteriemia and the diazo reaction go hand in hand is con-

firmed by Gerken. The diazo reaction is only to be found at those periods when the bacilli can be cultivated from the blood; later, when the Widal reaction becomes pronounced and the bacilli gradually disappear from the blood, the diazo likewise diminishes, and is usually absent towards the close of the fastigium. Cases treated with salol, calomel or tannagin gave no diazo at any time. The cause for the relation between bacteriemia and diazo reaction remains to be discovered.

5. The examination of the heart with the pelvis elevated possesses, according to Stern, the following advantages: (1) the percussion of the right border becomes easier; (2) doubtful systolic murmurs at the apex become more evident, or disappear; (3) the presystolic murmur in mitral regurgitation complicated with stenosis is more readily detected.

7. Koppis reports a case of eosinophilia (40%) occurring in carcinoma of the lung. At autopsy the necrotic portions of the tumor showed large numbers of eosinophiles as did also the bone marrow; the other organs contained no excess of these cells. The case, therefore, offers further evidence that the bone-marrow is the chief seat of the formation of eosinophiles. [W. T.]

BERLINER KLINISCHE WOCHENSCHRIFT, No. 14.

APRIL 8, 1907.

1. *BAGINSKY, A. *Pseudo-epidemic Cerebrospinal Meningitis.*
2. BURKNER, K. *The Use of Alypin in Diseases of the Ear.*
3. MARCUS. *Investigations on the Effect of Drinking Distill[illegible] Water in Chronic Nephritis.*
8. [illegible]KO, L. F. *The Clinical Significance of the [illegible]is Allorhythmia.* (Continued article.)
9. [illegible]RG, W. *A Gustometer for Clinical Purposes.*
M[illegible]TEIN, J. *A New Salicylate Preparation.*
[illegible], M. *The Demonstration of Spirochetes in [illegible]rs by the Silver Method.*

1. Under this title Baginsky describes five cases resembling clinically epidemic cerebrospinal meningitis, but not due to the meningococcus. Various bacteria were cultivated: staphylo- and strepto-cocci, micrococcus flavus, micrococcus crassus.

7. Stern describes a method by which the demonstration of the spirocheta pallida in smears, hitherto impossible, can be accomplished. The smear is placed several hours in the incubator at 37° C., and then in a glass vessel with flat walls containing a 10% solution of silver nitrate. Here the preparation is exposed to diffuse daylight for several hours until it assumes a brown color with metallic luster. Washing with water completes the operation. The spirochetes are stained black. [W. T.]

APRIL 15, 1907.

1. FELLNER, B., and RUDINGER, C. *Functional Examination of the Heart.* (Continued article.)
2. *MICHAELIS, L., and LEWIN, C. *A Transplantable Rat Carcinoma.*
3. *BERNHARDT, M. *The Occurrence and Significance of Medullated Nerve Fibers in the Retina.*
4. DÜHRSSEN, A. *A Method of Laparotomy which Prevents the Formation of Hernia.*
5. BENDA, C. *The Levaditi Stain for Spirochetes.* (Continued article.)
6. *DMITRENKO, L. F. *The Clinical Significance of Digitalis Allorhythmia.* (Concluded.)

2. Michaelis and Lewin have found a carcinoma of the mamma in the white rat which resembles human cancer more closely than the mouse tumors which form the usual subject for such investigations. Not only did recurrences take place after excision, both in the original tumor and in transplantations, but numerous metastases occurred in the internal organs. Attempts to immunize rats against the tumor were unsuccessful, but a natural immunity was not uncommon.

3. Bernhardt comes to the conclusion that medullated nerve fibers in the retina are usually accompanied by signs of the neuropathic constitution. They are never found in the new-born, but the disposition to medullation is probably congenital.

6. Dmitrenko discusses, on the basis of an instructive case, the disturbances of the heart's rhythm due to digitalis. Of these the most important is that form in which there is each time a pause after a definite number of beats, so that the pulsus bigeminus, trigeminus, etc., arise. The cause probably lies not in an alteration of the vagus mechanism, but in some change in the cardiac muscle; the pause is probably due to an extra systole too feeble to be felt or heard. It is an indication for the immediate withdrawal of the drug, for otherwise death is likely to occur. It does not, however, contra-indicate a return to digitalis after the condition is over. Another form of irregularity due to digitalis consists in the occasional interposition of extra systoles. This is of little consequence and does not necessitate breaking off the treatment. [W. T.]

BEITRÄGE ZUR KLINISCHE CHIRURGIE.

BAND 54, HEFT 1.

APRIL, 1907.

1. *GOLDMANN, E. E., and KILIAN, G. *The Use of the X-rays in the Disease of the Accessory Nasal Sinuses.*
2. *MONNIER, E. *A Clinical Study of Thyroidectomy Based on a Study of 670 Cases.*
3. *HOFMANN, M. *The Pathological Changes Occurring in Strangulation of the Intestine; Especially those Occurring at the Points of Constriction.*
4. FISCHER, K. *Congenital Goitre Treated by Operation.*
5. *HESSE, E. *The Treatment of Gangrenous Herniæ.*
6. MEISSNER. *Rupture of the Bile Passages by Blunt Violence.*
7. ZUMSTEEG. *Outward Subastragaloid Dislocation of the Foot.*
8. *BLAUEL. *The Etiology of Lateral Ventral Hernia.*

1. Goldmann and Kilian report thirty cases in which an x-ray examination of the nasal sinuses was of marked benefit in diagnosis and treatment. Their examinations were made in an antero-posterior direction. They conclude that an x-ray photograph, especially in the sagittal diameter of the skull, is of especial importance in this class of cases. It is of equal value with other methods of examination already in use, and should invariably supplement them. The article is accompanied by sixteen excellent reproductions of the x-ray plates.

2. Monnier has analyzed 670 cases of thyroidectomy at the clinic of Krönlein. Of these, 213 were men, 457 women, the majority being between twenty and thirty years of age. Difficulty in breathing was the almost constant complaint which led to operation. In 25% of the cases there were found cardiac changes, a fact of especial interest, since no cases of exophthalmic goiter are included in this series. These changes were most often dilatation or hypertrophy, palpitation and shortness of breath on exertion. Five cases died of acute suffocation in spite of operation for its relief; 9 other cases also died, making a total mortality of 1.6%. Of this series 125 cases were examined later; 105 showed complete relief of the dyspnea; 17 had difficulty only on unusual exertion, while in 3 there had been no improvement.

3. Hofmann reports in great detail the results of his histological examination of twenty-six specimens of strangulated small intestine. Among other points he emphasizes the fact that at the point of stricture the mucosa may be so injured by ischemia and vessel thrombosis that a stricture of the gut can easily occur after its being replaced within the abdominal cavity. This can occur even though the serosa remain intact and signs of peritonitis are absent. The article is well illustrated with photomicrographs.

5. Hesse, basing his opinion on 156 cases of gangrenous strangulated herniæ in Brau's clinic, finds that primary intestinal resection gave better results than any other method of treatment, the mortality following this method of treatment being but 47.5%, while it was 100% after either restitution of the suspicious gut to the abdomen or the formation of an artificial anus.

8. Blauel considers the muscular atrophy resulting in a hernia of the lateral portions of the abdominal wall to be in many cases due to a previous anterior polyomelitis. He reports such a case occurring in a child one year old with a previous history of fever and convulsions at the age of four months. A paralysis of the left leg was also present.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 15, 1907.

CITIES.	Reported deaths in each.	Deaths under five years.	CITIES.	Reported deaths in each.	Deaths under five years.
New York	1,343	428	Quincy	14	0
Chicago	571	178	Waltham	4	—
Philadelphia	—	—	Pittsfield	—	—
St. Louis	—	—	Gloucester	1	—
Baltimore	191	45	Brookline	—	—
Cleveland	—	—	North Adams	3	1
Buffalo	—	—	Chicopee	12	7
Pittsburg	—	—	Northampton	3	1
Cincinnati	—	—	Medford	5	1
Milwaukee	—	—	Beverly	5	1
Washington	—	—	Leominster	6	2
Providence	59	15	Hyde Park	2	0
Boston	210	55	Melrose	—	—
Worcester	42	9	Newburyport	—	—
Fall River	36	13	Woburn	2	—
Cambridge	21	4	Marlboro	3	1
Lowell	32	6	Westfield	4	—
Lynn	19	1	Peabody	—	—
New Bedford	18	9	Revere	3	2
Springfield	25	6	Attleboro	3	0
Lawrence	21	6	Clinton	3	0
Somerville	19	2	Adams	4	1
Holyoke	17	4	Gardner	—	—
Brockton	14	2	Milford	—	—
Malden	14	3	Watertown	3	0
Chelsea	12	2	Plymouth	—	—
Salem	17	4	Weymouth	0	—
Newton	8	1	Framingham	3	1
Haverhill	12	7	Southbridge	2	1
Fitchburg	5	1	Wakefield	—	—
Everett	11	2	Webster	—	—
Taunton	15	5			

CHANGES IN THE MEDICAL CORPS U. S. NAVY FOR THE WEEK ENDING JUNE 22, 1907.

R. W. PLUMMER, passed assistant surgeon. Detached from course of instruction at the Naval Medical School, Washington, D. C., June 15, and ordered to the Naval Recruiting Station, Chicago, Ill.

N. T. MCLEAN, assistant surgeon. Detached from the Naval Recruiting Station, Chicago, Ill., and ordered to the "Constellation" and to additional duty at the Naval Training Station, Newport, R. I.

C. J. HOLEMAN and B. F. HAINES, acting assistant surgeons. Appointed acting assistant surgeons from June 12, 1907.

H. G. BEYER, medical inspector. Detached from duty on board the "West Virginia" as fleet surgeon of the Pacific Fleet, and appointed a delegate to represent the Medical Corps of the Navy at congresses to be held at Stockholm, Sweden; Amsterdam, Holland, and Berlin, Germany, and ordered to proceed thence to Washington, D. C., and report to the Surgeon-General of the Navy.

H. A. DUNN, passed assistant surgeon. Detached from the "Princeton" when placed out of commission, and ordered to the "Nebraska."

C. ST. J. BUTLER, passed assistant surgeon. Detached from course of instruction at the Naval Medical School, Washington, D. C., and ordered to duty at that school.

H. L. KELLEY, assistant surgeon. Ordered to the Naval Hospital, Navy Yard, Washington, D. C.

A. B. CLIFFORD, assistant surgeon. Detached from the Naval Station, Canacao, P. I., and ordered home to await orders.

A. W. LEE, assistant surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to the Naval Hospital, Canacao, P. I., sailing from San Francisco, Cal., about July 25, via steamer "Siberia."

G. P. BRADLEY, medical director, having been examined by a retiring board and found incapacitated for active service on account of disability incident thereto, is retired from active service from June 15, 1907, under the provisions of Section 1453. Revised Statutes.

C. T. HIBBETT, medical inspector. Detached from special duty in the Bureau of Medicine and Surgery, Navy Department, and ordered to command the Naval Hospital, New Fort, Lyon, Colorado.

T. A. BERRYHILL, surgeon. Detached from command of the Naval Hospital, New Fort Lyon, Colorado, and ordered to the "Nebraska" when commissioned.

C. J. HOLEMAN, acting assistant surgeon. Ordered to duty at the Naval Hospital, Philadelphia, Pa.

APPOINTMENT.

Dr. George W. Holmes has been appointed resident physician at the Long Island Hospital, Boston.

RECENT DEATH.

DR. THOMAS HILL, a retired physician of Brooklyn, N. Y., died on June 19, after a brief illness. He was born in Milltown, Malbay, County Clare, Ireland, on March 13, 1845, and was a graduate of Niagara University. For a number of years he served as a surgeon in the United States Army, and he was a member of the Army and Navy Union.

BOOKS AND PAMPHLETS RECEIVED.

Morris's Human Anatomy. A Complete Systematic Treatise by English and American Authors. Edited by Henry Morris, M.A. and M.B. Lond., F.A.C.S. Eng., and J. Playfair McMurrich, A.M., Ph.D. Fourth edition, revised and enlarged. Illustrated. In five parts. Parts I and II. Philadelphia: P. Blakiston's Son & Co. 1907.

Chemical Pathology, being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D. Philadelphia and London: W. B. Saunders Co. 1907.

Modern Surgery, General and Operative. By John Chalmers Da Costa, M.D. Fifth edition, thoroughly revised and enlarged. Illustrated. Philadelphia and London: W. B. Saunders Co. 1907.

Diagnostics of the Diseases of Children. By Le Grand Kerr, M.D. Illustrated. Philadelphia and London: W. B. Saunders Co. 1907.

A Manual of Personal Hygiene. Proper Living upon a Physiologic Basis. By American Authors. Edited by Walter L. Pyle, A.M., M.D. Third edition, revised and enlarged. Philadelphia and London: W. B. Saunders Co. 1907.

A Manual of the Diagnosis and Treatment of the Diseases of the Eye. By Edward Jackson, A.M., M.D. Second edition, thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders Co. 1907.

Le Sweating System et la Loi sur la Protection de la Santé Publique. Communication Faite au Congrès de l'Association des Ingénieurs, Architects et Hygiénistes municipaux, Lyon, 1907. Par le Dr. Lucien-Graux, Paris. 1907.

Nephritis. A Manual of the Disease commonly called Nephritis or Bright's Disease and of Allied Disorders of the Kidneys. By Seelye W. Little, M.D. New York: The Grafton Press. 1907.

Poisons: Their Effects and Detection. By Alexander Wynter Blyth, M.R.C.S., F.I.C., F.C.S., and Meredith Wynter Blyth, B.A. (Cantab.), B.Sc. (Lond.), F.I.C., F.C.S. Fourth edition, thoroughly revised, enlarged and rewritten. Illustrations. London: Charles Griffin & Co., Ltd. New York: D. Van Nostrand Co. 1906.

Lateral Curvature of the Spine and Round Shoulders. By Robert W. Lovett, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Postoperative Treatment. An Epitome of the General Management of Postoperative Care and Treatment of Surgical Cases as Practised by Prominent American and European Surgeons. Together with Suggestions Concerning the Technic of Certain Operations with a View to Securing Better Postoperative Results. By Nathan Clark Morse, A.B., M.D. Second edition, revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1907.

Pneumonia. Pneumonia with Special Reference to the Use of Fresh Air and a Saline Solution, and the Abuse of Alcohol, Opium, and Other Drugs in its Treatment. By Stephen Smith Burt, A.M., M.D. Reprint.

The Physiological Effect of the Waters of the Hot Springs of Arkansas. By E. H. Martin, M.D. Reprint.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M.D., LL.D., Albert H. Buck, M.D. Complete in eight volumes. Illustrated. Vol. III. New York: William Wood & Co. 1907.

Report of the Commissioner of Education for the Year ending June 30, 1905. Vol. I. Washington. 1907.